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MAKING A CASE FOR CITIZEN VALUE: DO FLUID INTELLIGENCE AND  
ADAPTIVE GOVERNANCE PROMOTE STABILITY IN THE MIDDLE EAST?

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A Thesis  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts  
in  
National Security Studies

---

by  
Natascha Camille Bolden

September 2018

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Natascha Camille Bolden

September 2018

Approved by:

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## ABSTRACT

Information and Communication Technologies (ICT) are changing the way people learn, do business, build relationships, and manage their lives. ICT allow easy and continuous access to open source intelligence (OSINT) that acts as force multipliers, enabling civilians to find new and more effective ways to participate in civil society and address disempowering strategies implemented by governments around the world to maintain stability. ICT and OSINT cultivate fluid intelligence and adaptive governance and can act as a catalyst to cultivate these capacities to transform conflict. The research question sought to determine whether fluid intelligence (cognitive ability to adapt and innovate) and adaptive governance (leadership and systems that work together with the governed to create favorable outcomes) are correlated with stability in gulf monarchies in the Middle East. This thesis examined the Kingdom of Saudi Arabia, the State of Qatar, the United Arab Emirates (UAE), the Kingdom of Bahrain, the State of Kuwait, and the Sultanate of Oman using a complex adaptive systems analytic framework that drew upon the theories of adaptive governance and fluid and crystallized intelligence. Group grievance often indicates levels of stability in civilian populations. This study revealed a strong correlation between adaptive regimes with fluid populations and stability. Populations high in fluid intelligence in adaptive monarchical regimes had lower group grievance, but populations high in fluid intelligence in non-adaptive monarchical regimes had higher group grievance.

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I would also like to express loving gratitude for my Sunshine whose inspiration, encouragement and support has helped me to joyously keep moving forward while staying true to my core values.

## DEDICATION

This thesis project is dedicated to my mother and to my loving, amazing and awe-inspiring God.

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## CHAPTER ONE

### INTRODUCTION

The Arab Spring of 2011 was a succession of civilian revolts that spread throughout the Middle East (Anderson, 2011). Populations rose against governments that refused, or lacked the capacity, to make the changes needed to implement much-needed social, cultural, and economic reform. Arab Spring incidents took place throughout the Middle East, including all six of the gulf monarchies. The Kingdom of Saudi Arabia, the State of Qatar, the Kingdom of Bahrain, the State of Kuwait, and the Sultanate of Oman all experienced incidents of population unrest at different degrees and for diverse reasons. According to Forstenlechner, Rutledge, and Alnuaimi (2017), two main assumptions have circulated in academia about why the gulf monarchies did not collapse under protest during the Arab Spring, including the fact that “monarchies are based on tribal, clan and family allegiances” (para. 1) and social contracts that have met the populations’ basic needs. Forstenlechner et al. also made it clear that none of the gulf monarchies “face a crisis of legitimacy” (para. 1). The following study used a data centric interdisciplinary approach to test these assumptions and discover if there is a strong correlation between populations high in fluid intelligence in adaptive regimes and stability in Middle Eastern gulf monarchies.

## A Civilian Perspective

The perspectives of civilian populations can be explored by insightfully observing the nature of decentralized, aggregate, informal communities in the region. Bayat (2013) asserted that subtle nuances in Middle Eastern civil society in the months preceding the Arab Spring indicated a climate ripe for protest, but were overlooked because observers failed to recognize the new signs of the times.

In monarchies, levels of trust among the population in the form of goodwill (or social capital) serve as a mechanism to share and promote social, economic and political interests. Information and Communication Technologies (ICT) are mechanisms these populations use to engage with and diffuse ideas in the local, national, and international sphere. The governed in gulf monarchies participate *indirectly* in the decision-making process (with the exception of Kuwait, which operates under a parliamentary system). Citizen participation through collaboration is a powerful force that drives the implementation of sound policy in civil society, “creating opportunities for citizens to lead healthy and productive lives” (National Democratic Institute, 2018, para. 1). However, in the gulf monarchies, direct citizen participation through traditional democratic mechanisms is among the lowest in the Middle East (Bertelsmann, 2017).

## Interest Groups

Economic and non-economic interest groups drive social movements and influence the decision-making process. An interest group is “an organization whose members share common concerns, and try to influence government

policies that impact those concerns” (Cliffs Notes, 2016, para. 1). Economic interest groups share and promote business interests whereas non-economic interest groups can be religious, single interest, cultural, or ideological (Cliffs Notes, 2016). The form and function of the interest group (e.g., economic or non-economic) working within a specific type of governing system (e.g., democracy or monarchy) work together differently to influence its impact on the development and implementation of policy in the interests of the private sector or community-at-large. These formal groups use ICT to attract others and promote their agendas.

#### Information and Communication Technologies, Social Change, and Open Source Intelligence

ICT have permeated government institutions and civilian populations alike. These new technologies carry and diffuse communications in a consistent and systematic fashion.

Customer management systems (CMS), websites, blogs, smart phones, social media platforms, search engines, podcasts and television broadcasts are examples of passive and active ICT mechanisms that facilitate the effective delivery of personal messages, public opinions, ideas, facts and diverse worldviews. (Rouse, 2017, para. 3)

Data and information that are available to the public are generally classified as open source. The Central Intelligence Agency (CIA, 2010) defines open source as “publicly available information including the internet, television, radio,



newspapers, magazines, specialized journals, conference proceedings, think tank studies, photos and geospatial information” (para. 3).

Open source information “legally and ethically derived from public sources” (Steele, 1997, p. 329) and specifically tailored to satisfy or support a specific objective is often defined as open source intelligence (OSINT). The terms OSINT and open source information are often used interchangeably in both the public and private sector. Regardless of how it is referenced, this easily accessible, ubiquitous, and highly impressionable immersion of diverse messages and media is changing the way that populations perceive and respond to adaptive and non-adaptive governments.

OSINT driven by ICT have changed the way human beings think, interact, and manage their daily lives. “The more recent developments of the internet and worldwide web have created new roles for human-computer symbiosis in human computer relationships, actually augmenting human intelligence in dynamic problem solving” (Glassman & Kang, 2012, p. 675) by the constant use of OSINT. ICT and the internet are both mechanisms and media. ICT are used to deliver OSINT to the end user and the internet is used as a form of media to access and diffuse diverse ICT and OSINT to the end user. ICT are useless without information to share, just as a printer by itself is of no utility without ink.

When gathered, developed and shared on social networking platforms like Twitter, Facebook, and YouTube, OSINT allow anyone with an internet connection to express who they are, what they stand for, and points of pain affecting the quality of their lives.

As work becomes more technologically specialized and interrelated with the global village, and as associations with a wider range of individuals make social life more complex, “reality” is more to be perceived in the abstract, more to be pieced together in mental processes. (1988, Fisher, p. 133)

Individuals and groups globally discover commonalities and differences through the systematic exchange of ideas. OSINT distributed through ICT channels contribute to the development of fluid intelligence (innovation and interdisciplinary thinking) that affect how individuals and groups manage expectations both domestically and abroad. These connections also reveal how networks of individuals express discontent and solve problems.

#### Non-Adaptive Governance

The challenge of unstable, volatile civilian populations in high risk regions has been historically addressed using strategies of coercion, intimidation, and subjugation that include using the word “terrorist and terrorism” out of context, “smear campaigns, threats, travel bans, harassment, fines, arrests and imprisonment” to keep hot political climates from erupting into devastating governmental forest fires (Civicus, 2018, p.15). In the past, these practices have sustained dictatorships and authoritarian regimes, and sanctions or interventions imposed by the international community have not improved the lives of populations affected by them. The complexity of interdependent relationships and OSINT developed and nurtured between and within state and non-state actors has changed the calculus of perceptions and responses to exogenous control

tactics. From 2010-2016 mass reformation movements, and terrorist incidents have checkered the global landscape on increasing scales.

The National Intelligence Council (NIC, 2012) revealed “megatrends, game changers and potential worlds” (p. ii) that are likely to have the greatest effect on international security by the year 2030. From those three categories, key indicators within each that have direct or indirect ties to ICT and OSINT in the context of adaptive governing systems include “individual empowerment; diffusion of power; demographic patterns; the governance gap; the impact of new technologies and a non-state world” (p. ii). Of the comprehensive list of trends, frameworks, and alternative worlds, none addressed how the interaction effects from fundamental cognitive paradigm shifts and the degree of adaptability of governing systems will impact stability and international security in the years to come. In the context of this research study, the identification of these endogenous and exogenous indicators among and within the Middle Eastern gulf monarchies can inform bottom-up, local-level preventive strategies that contribute to stability and growth in the Middle East through adaptive collaborative governance.

#### What is Fluid and Crystallized intelligence?

The theory of fluid intelligence (or Gf) and crystallized intelligence (or Gc) explains how human beings perceive, process, and respond to internal and external stimuli (Kyllonen & Kell, 2017). It seeks to describe the static and dynamic schemata that drive and form human intellect. Crystallized intelligence indicates the capacity to make sense of data from a static framework (like

learning a new language or relying on experience to inform decisions), whereas fluid intelligence indicates a capacity to use static frameworks in diverse contexts and solve novel, complex problems (Kyllonen & Kell, 2017).

A research study conducted by Glassman and Kang (2011) concluded that individuals have evolved to favor more adaptive or fluid ideas and responses to unfavorable conditions in adult populations. This is already a natural characteristic of youth populations. The age of ICT has ushered in constant exposure to and dissemination of OSINT, which has, over time, changed the nature of neural networks in the brain, changing the lens by which people see the world and the mechanisms individuals and groups use to express needs and enhance their ability to meet those needs. This thesis argues that these cognitive changes are germane to the extent that non-state actors might respond to adaptive or non-adaptive governing systems based on thresholds that instigate climates of conflict or progressive reform.

Fluid intelligence alone is not adequate to determine these thresholds, as gaps in the expectations of civilian populations largely hinge on the degree of adaptability of governing systems and baseline level needs within the population.

States with some of the highest levels of internet usage (such as Bahrain with 88% of its population online, a level higher than that of the United States) and states with some of the lowest levels of internet exposure (like Yemen and Libya) both experienced mass protests. (Stepanova, 2011, p. 3).

In complex adaptive systems, combinations of variables can produce completely different outcomes. A more accurate measure of thresholds within a particular state based on both the government *and* the governed would better determine the nature of the interactions between populations engaged in internet and ICT usage (which cultivate fluid intelligence), the degree of adaptability of the governing system, and its influence on stability in the Middle East.

### Current Study

The current study strove to investigate one primary issue: whether fluid intelligence through ICT and OSINT engagement in civilian populations with adaptive governments promote stability in gulf monarchies in the Middle East. Leaders in governments around the world have tapped into the power of ICT to influence public thought by shaping collective perspectives about policies and encouraging citizens to engage in the political process by keeping them informed of new ideas, initiatives, or opportunities to contribute to decisions that lead to progressive reform. Democracies, authoritarian governments, and monarchies navigate ICT and OSINT in different ways for different purposes. Most non-state actors are using ICT to leverage the power of timely, relevant, and practical OSINT to innovate and affect change.

Local populations within Middle Eastern monarchies and the international community are not only using ICT as a tool in droves, but also evolving through “human computer symbiosis” (Glassman & Kang, 2012, p. 674). This evolution of internal cognitive “capacities of resilience” to traditional forms of aggressive governmental interventions and population control are changing the ways that

civilian populations in gulf monarchies respond to conflict in adaptive and non-adaptive regimes. In the same way an adult's immune system can resist a medication that may have worked effectively in the past due to the body's ability to develop antibodies against it, individuals and groups are growing more socially and cognitively resilient to calculated strategies of disempowerment and subjugation in non-adaptive governing systems.

It is important to note that emergent outcomes in complex social systems can range from high to low probability and are intermittent and often high impact events. The fluid intelligence inherent in populations can be used to develop communities where quality of life expectations are consistently exceeded, or it can support the proliferation of regional and international incidents from groups and individuals who tap into their fluid capacity to promote violence, instability, and unrest.

In a tectonic shift, individuals and small groups will have greater access to lethal and disruptive technologies (particularly precision-strike capabilities, cyber instruments, and bioterror weaponry), enabling them to perpetrate large-scale violence—a capability formerly the monopoly of states. (NIC, 2012, p. 9)

## Thesis Organization

The following sections of this thesis explore the existing body of research on adaptive governance, the nature of monarchies, and fluid/crystallized intelligence theories. They also present the methods used to create and analyze the dataset, the results of the analysis, a discussion of those results, and a conclusion.

Chapter Two summarizes the complex systems framework (Homer-Dixon, 1996); adaptive governance (Brunner, Steelman, Coe-Juell, Cromley, Edwards & Tucker, 2005; Folke, Hahn, Olsson & Norberg, 2005; Karpouzoglou, Dewolf & Clark, 2015); the form and function of absolute, constitutional and federation monarchies in the Gulf (PBS, 2018); and ICT's impact on fluid and crystallized intelligence on national innovation systems, research, and development in gulf monarchies (Cattell & Horn, 1978; Glassman & Kang, 2012; Kyllonen & Kell, 2017; Wiseman & Anderson, 2012). After that, the literature review continues to build upon concepts from environmental psychology such as the ecology of human environment transactions (Stokols & Montero, 2002); the strategic uses of power structures and cultural identity networks that affect group and individual behavior (Romic, 2013); individual empowerment (Kieffer, 1984; Sadan, 2004); and the relationship between adaptive collaborative governance and self-organized, sustainable communities (Folke, Hahn, Olsson & Norberg, 2005; McDougall & Banjad, 2015).

Chapter Three describes the methods used to conduct a complex comparative analysis to test whether fluid intelligence and adaptive governance contribute to stability in gulf monarchies. The analytic process used a case study

research approach, process tracing, and the Periploko Method (a system designed to standardize data from diverse sets and measure interactions among concepts, dimensions, and data) to establish patterns and trends of correlation through abductive, deductive, and inductive reasoning. Adaptive capacity, collaboration, scale, learning, and knowledge were introduced as key concepts driving the research (Folke, Hahn, Olsson, & Norberg, 2005). Patterns, trends, and impact within and between categories and states were analyzed using data from 2010-2016.

Chapter Four presents the results of the comparative complex analysis using summaries, tables, charts, and graphs. The study revealed that fluid intelligence and adaptive governance do contribute to stability in gulf monarchies. However, highly fluid populations governed by non-adaptive regimes tend to be more unstable, as indicated by levels of group grievance. The degree to which governing systems could identify and collaboratively adapt to these highly charged populations to meet baseline quality of life expectations while maximizing citizen value was the ultimate tipping point between outcomes that hinged on stability (low group grievance) or unrest (high group grievance).

Chapter Five discusses the results in the context of the existing body of research, the current case study analysis, outliers and inconsistencies, implications, research limitations, advancing the research, and policy recommendations. The Kingdom of Saudi Arabia, the Kingdom of Bahrain, the State of Qatar, the State of Kuwait, and the Sultanate of Oman have all experienced instability within their population due to the Arab Spring. Some of



these states are home to groups that have sponsored international and regional acts of terrorism. The United Arab Emirates maintained consistent levels of stability throughout the Arab Spring. The data results reveal patterns, trends, and characteristics that provide more depth into how levels of fluid intelligence and degree of government adaptivity can promote stability or foment dysfunctional expressions of discontent.

## CHAPTER TWO

### LITERATURE REVIEW

Generally, prior research has not integrated adaptive governance and fluid intelligence to examine stability in the Middle East. The integration of these theories and data can shed light on how a motley group of variables could have the capacity to affect regional and international security on a grassroots level. The research question sought to answer whether ICT and OSINT cultivated fluid intelligence (cognitive ability to adapt and innovate) and whether adaptive governance promoted stability in Middle Eastern monarchical regimes. Examining different theories from diverse disciplines can reveal latent, overlooked subtleties that could have a tremendous impact on the capabilities, strategic direction, occurrence, and evolution of stability in Middle Eastern gulf monarchies.

The interaction between state governing systems and the residents within that state are considered complex adaptive systems (CAS). CAS are primarily driven by feedback mechanisms that determine the nature of the activity while perpetuating interactions within the system (Miller & Page, 2007). Thomas Homer-Dixon (1996) distinguished between additive models based on the scientific method and relational, interactive models. Frameworks based solely on inductive and deductive reasoning are additive, but abductive reasoning often requires consideration of relational factors: "A system with highly non-linear functions can exhibit unanticipated threshold effects and chaotic behavior in

response to small perturbations” (p. 8). Homer-Dixon (1999) asserted that many outcomes in complex systems often only manifest themselves “in complex interaction with other social and physical variables” (p. 93). Homer-Dixon (1996) argued that traditional approaches to solving complex political science research questions such as the “Rational Actor and Causal Relationship do not fully capture the breadth and scope of interactions and potential “emergent phenomena” that may develop within a given time frame given myriad variables and conditions” (p.8). Homer-Dixon’s approach to complex systems aims to understand the gap between *what is* and *what is expected* as opposed to solely examining independent variables’ direct effect on given dependent variables. Adaptive governance and fluid intelligence were analyzed to determine whether and how this combination of variables could substantially affect levels of stability within gulf monarchies in the Middle East.

### Types of Middle Eastern Gulf Monarchies

Countries throughout the Middle East are generally governed by parliamentary republics, theocracies, and monarchies that have been collectively characterized by “nationalism, religion, social and economic concerns, anti-colonialist sentiment, diverse ethnic identities and tribal loyalties” (PBS, 2002, para. 1). There are eight monarchies in the Middle East: the six gulf regimes, and Morocco and Jordan. The Gulf Cooperation Council (GCC) is a collection Middle Eastern states in Arabia whose primary goal since the GCC’s founding has been to increase political and economic ties within the Middle Eastern region (Sikimic, 2014). Its founding members include the Kingdom of Saudi Arabia, the

Sultanate of Oman, the United Arab Emirates (UAE), the State of Kuwait, the Kingdom of Bahrain, and the State of Qatar. Saudi Arabia is the largest country within the council with a population of 28,571,770 as of 2016, while Bahrain boasts a population of 1,410,942 as of 2016(CIA World Factbook, 2016).

The Middle Eastern gulf monarchies in Arabia are classified as absolute, constitutional, or federations. Absolute monarchies were born from absolute political systems based on the “divine right of kings” theory that emphasized centralized and complete power ordained by God (Encyclopedia Britannica, 2018, para. 4). A traditional absolute monarchy is characterized by a lack of checks and balances and authority granted to one dominant leader that usually earned the regime a negative reputation due to corrupt leadership (Encyclopedia Britannica, 2018). This naturally resulted in little to no citizen participation in populations under monarchical rule. Some monarchies considered and anticipated the needs of the population, whereas others neglected or failed to hear the voice of the governed.

The Kingdom of Saudi Arabia, the Sultanate of Oman, and the State of Qatar are considered absolute monarchies, yet their religion, ethnic diversity and natural resource wealth set them apart from absolute monarchies in Europe. Nepotism, unemployment and civil inequities are challenges that are being addressed in modern reformation initiatives, but the biggest challenge of all is the fear of losing legitimacy and relevance in an age of technological advancement and individual empowerment (CIA World Factbook, 2016).

In constitutional monarchies, the king or queen is the head of state, but does not have legislative authority (Monarchies, 2018). The Kingdom of Bahrain and the State of Kuwait are constitutional monarchies (CIA, 2017). Power to make and implement laws is given to a parliament designed to represent the people, although hereditary monarchical rule is still the dominant influence on the system (Monarchies, 2018). There are stark differences in governance, transparency, and citizen participation between Bahrain and Kuwait, even though they have the same political systems.

The UAE is governed by a federation of seven monarchial sheikhdoms governed by a President and Prime Minister. Their government is composed of an executive, legislative and judiciary branch and their legal systems are based on both sharia and civil law (World Atlas, 2017). Citizen participation is implemented by “consultation (shura),” “consensus in group decision making (ijma),” and “the use of a consultative assembly made up of elders and respected members of civil society “(majlis al-shura)” (Long, 2017, paras. 6-8).

### Adaptive Governance Theory

Adaptive governance theory contributed to the research methodology by providing a theoretical lens “in line with the emergence of new modes of governing in which multiple actors are involved; interactions within and across state, private sector and civil society are key; and decisions require action across multiple states and levels” (Karpouzoglou, Dewolf & Clark, 2015, p. 1). Munaretto, Siciliano, Turvani (2014) argued that “government control and steering” (p. 73) are counterproductive in managing complex social-ecological

systems in the 21st century. Adaptive governance attempts to reduce uncertainty by integrating diverse perspectives, knowledge, and evidence to improve the quality of decision-making. This complex analysis applies the general constructs inherent in adaptive governance to the dynamic that exists between the government and the governed within the gulf monarchies of the Middle East.

Monarchies make decisions that are heavily influenced and implemented by the royal family without a significant consideration of external perspectives (constitutional democracies are more democratic by design than the others). The concepts of citizen participation and monarchical rule are historically diametrically opposed. The gulf monarchies are composed of homogenous decision-making bodies that have been challenged to keep pace with the governed to meet quality of life expectation gaps in a rapidly evolving, 21<sup>st</sup> century society. Some gulf monarchies within the Middle East have been more adept at navigating the civil landscape to accommodate civil expectations than others. The form of governance is just one piece of the stability puzzle. Monarchies that have integrated systems, policies, or initiatives designed to give more voice to the governed will fail to promote stability and sustainable communities without adaptive leadership and a nuanced understanding and consideration of their population's expectations.

Constitutional monarchies in the Gulf have systems that are designed to increase the capacity for citizen participation while maintaining the integrity of the regime, but each has implemented those systems with starkly different levels of impact. The Kingdom of Bahrain and the State of Kuwait are both constitutional

monarchies, but stability within each dramatically differ as “demographic pressures, human rights and law and group grievance” have affected political, social, and economic outcomes (The Fund for Peace, 2017, para. 1).

The UAE is a federation of monarchies that has put a premium on consensus, citizen engagement, and progressive reform. This group of monarchies has a centralized government composed of executive, judicial, and legislative branches. The UAE are different from the other monarchies in that they rely on diverse pools of knowledge and perspectives from each individual emirate applied to the federation, have institutionalized mechanisms that gather and consider the needs of the governed, and frequently consider civil feedback in the decision-making process.

#### The Evolution of Adaptive Cognitive States: Adaptive Governance and the Expectation Gap

The interaction between these diverse governing systems and their respective populations has manifested environments with various thresholds conducive to meeting essential quality of life expectations in the Middle East. Quality of life is defined in this paper as “social, cultural and institutional support that lends itself to a sense of physical, emotional and psychological wellness” (Knoema: IMD World Talent Report, 2017, paras. 1-2). This concept is operationalized as a form of internal satisfaction with *the way things are*, buttressed by adaptive governance systems and meaningful social universes (Fisher, 1997) and catalyzed by fluid, adaptive cognitive states. The gap between fulfilled expectations and the cacophonous dissonance of hope deferred against

the backdrop of non-adaptive governing systems in the Middle East can create atmospheres ripe for conflict and instability.

Adaptive governance emphasizes the interdependence of science, policy, and decision-making from an integrative perspective that encourages grassroots support in the decision-making process. This context of governance has been historically applied to manage and facilitate natural resource and other social ecological systems (Brunner et al., 2005). Karpouzoglou, Dewulf, and Clark (2015) categorized adaptive governing systems as characterized by adaptive capacity, collaboration, scaling, knowledge, and learning. The theory of adaptive governance is ideally suited to examine how monarchical governing systems in the gulf region can effectively accommodate civil cognitive and paradigm shifts to encourage stability in the Middle East.

### The Theory of Fluid and Crystallized intelligence

The internet has given non-state actors access to a seemingly infinite scale of resources, knowledge, opportunities, and diverse perspectives that have changed the calculus of quality of life expectations throughout the world. OSINT disseminated through diverse ICT mechanisms have developed more fluid abilities in populations that enable them to respond more effectively to opportunity constraints, human rights abuses, and other strategies of subjugation by non-adaptive governing systems. Open government data sources have forced governing systems to adhere to higher standards of accountability and institutional responsiveness to the needs of civil society. Non-adaptive governing systems strongly regulate accessibility to government data to strategically control



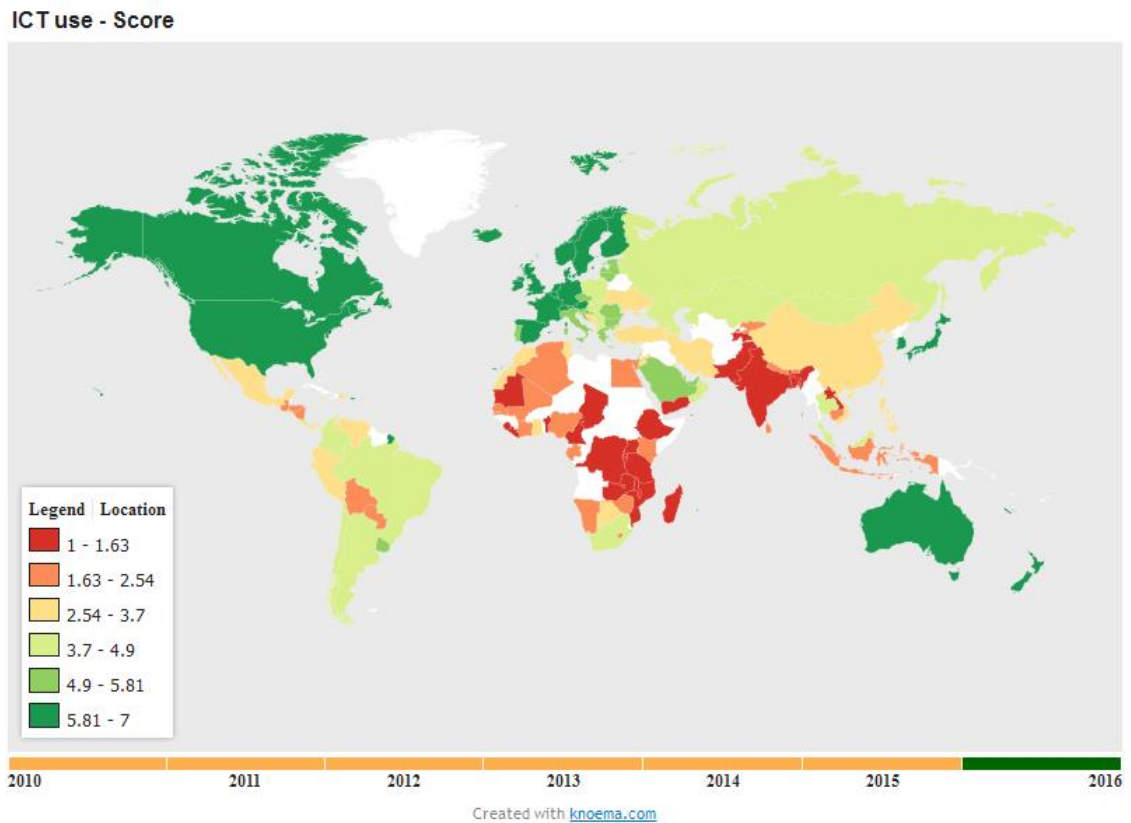
population expectations and decrease transparency, which tends to cultivate corruption, further widening the gap between quality of life expectations and stability (Open Data Barometer, 2017).

The theory of fluid and crystallized intelligence contributes to the overall research methodology by deepening an understanding of how fundamental cognitive capacities among populations in gulf monarchies have evolved to accommodate complex environments, diverse learning landscapes, and advanced technology. The ability to think ‘fluidly’ or to exercise fluid perspectives in diverse contexts is more common in young adults: “Younger humans (generally through mid-adolescence)...use a fluid intelligence to solve problems and navigate their local ecologies, but as they grow older, the crystallized habits of thought become more important in thinking processes” (Glassman & Kang, 2012, p. 674). The lifespan of fluid intelligence has increased into adulthood (Glassman & Kang, 2012) and has manifested a cognitive adaptive resilience to traditional intimidation and subjugation tactics that disempower populations in attempts to promote stability. The value of individual citizens in terms of knowledge, innovation, and contribution has increased drastically in tandem with these capacities of adaptation and resilience. Paradigms that leverage this emergent citizen value can contribute to progressive and thriving monarchical regimes in the Middle East. Citizen value can be defined in terms of a sustainable *empowerment quotient* (innovative, social, cultural, holistic, and economic) that contributes to quality of life, longevity of the regime, and national/international security.

Wiseman and Anderson (2012) researched ICT-based learning as a catalyst for national innovation systems (NIS) and research and development innovation (RDI) in gulf monarchies to discover in what capacity “education was being used to advance sociopolitical and economic agendas” (p. 607). The researchers concluded that, collectively, the countries had a high capacity to contribute to progress in science and technology, yet have been hampered due to cultural constraints. Knowledge is used here in the context of both fluid and crystallized intelligence. Wiseman and Anderson asserted that “as individuals become creators of knowledge they are able to share and spread innovation” (p. 610). The researchers did not make it clear how knowledge affects another ability that supports the development of innovation: critical thinking in the form of fluid intelligence. In measuring capacity, Wiseman and Anderson categorized learning and knowledge (fluid and crystallized intelligence) as a single entity.

Kyllonen and Kell (2017) contended that knowledge and learning are two very different outcomes, distinguishing them in the context of crystallized and fluid intelligence. Crystallized knowledge is “ability that reflects schooling and acculturated learning” whereas fluid intelligence reflects critical and adaptive thinking (p. 15). This research study examined knowledge and learning in the context of crystallized and fluid intelligence.

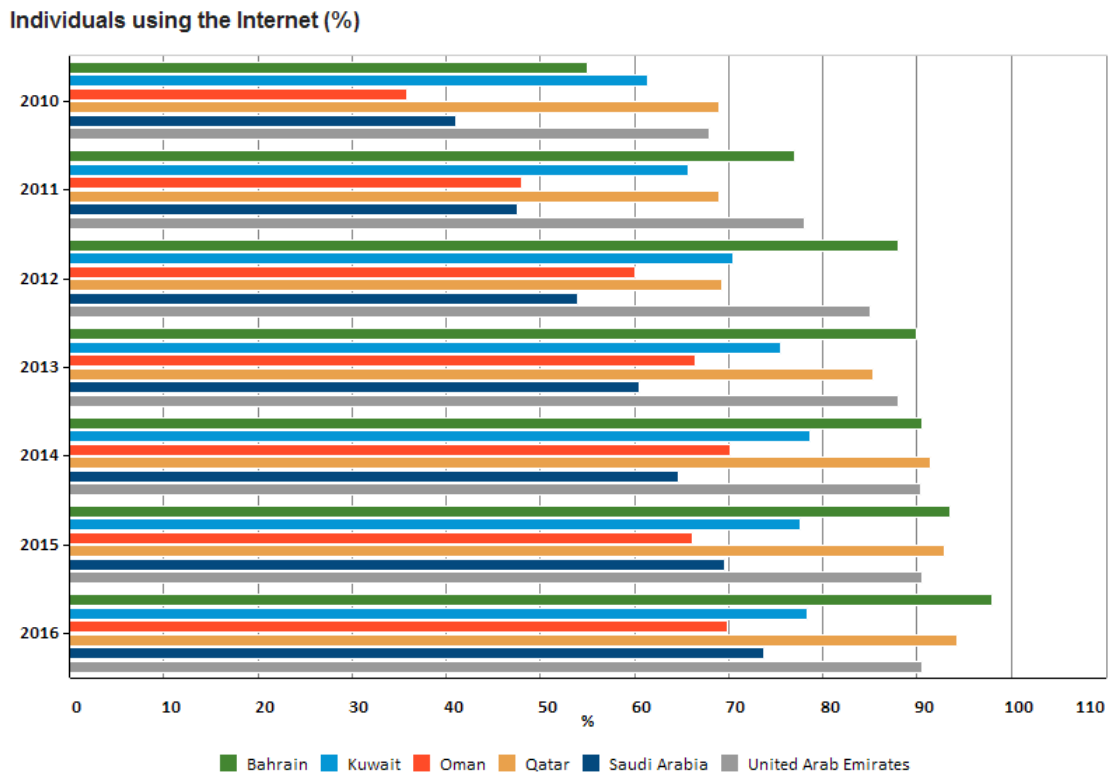
## The Influence of ICT on Individual Empowerment



*Figure 1.* Information and communication technologies usage around the world, 2010-2016. Source: World Economic Forum, Global Information Technology Report, Networked Readiness Index (NRI), 2017. *Note.* 1 = least engaged and 7 = most engaged.

The advent of the internet and ICT have facilitated a megatrend of individual empowerment that has given non-state actors the accessibility and scale (see Figures 1 and 2) to acquire knowledge, develop skills, and mobilize resources to achieve personal, professional, and political agendas (Glassman & Kang, 2011; National Intelligence Council, 2012). Romic (2013) emphasized non-state actors' use of "cyber power" and ICT to "facilitate novel means to

politically challenge the traditional nation state” (p. 99) and form ideational social networks that strongly influence group and individual behavior. Romic also asserted that “patterns of interdependence” (p. 94) and interactions between groups and individuals shape behavior.



*Figure 2.* Internet usage in the Middle Eastern gulf monarchies (2010-2016).  
Source: International Telecommunications Union (ITU), 2017

Sadan (2004) described individual empowerment as a “personal, intimate change process” (p. 13). This process involves interactions among people, the environment, and conditions. Individual empowerment is a capacity that enables tenacious, critical, and symbiotic engagement in self, family, and community to

affect change. Populations that are empowered have high levels of fluid intelligence (Kieffer, 1984; Sadan, 2004).

Empowerment is an interactive process which occurs between the individual and his environment, in the course of which the sense of the self as worthless changes into an acceptance of the self as an assertive citizen with sociopolitical ability. The outcome of the process is skills, based on insights and abilities, the essential features of which are a critical political consciousness, an ability to participate with others, a capacity to cope with frustrations and to struggle for influence over the environment. (Kieffer, as cited in Sadan, 2004, p. 75)

#### Shaping Minds and Political Outcomes Through Fluid Intelligence

The worldwide web generates a wealth of knowledge that shapes perceptions, identities, and meaning in youth and adults alike. ICT and OSINT on the internet expose individuals and groups to ideas and ways of thinking that transcend social, cultural, and ethnic identities. Stokols & Montero (2002) asserted that human environment transactions are guided by two assumptions: that people's relationships with their environments influence their wellbeing, and that they strive to enhance the "degree of fit between their own (or group's) goals and needs" with the conditions of the environment (p. 661). ICT include personal computers, smart phones, social media, and electronic newsletter delivery services. OSINT includes information, data, and intelligence that is readily accessible and open to the public. Individuals and groups use ICT to produce and disseminate OSINT through multiple channels with an international reach.

Self-expression and a culture of self-actualization pervade social media venues, blog sites, and podcasts that are accessible to anyone with an internet connection and an open mind.

Romic (2013) asserted that “new interactive technologies have provided a new and multi-leveled means for the construction of a given individual’s social identity” (p. 96). The strong human connections forged by the internet have cultivated an expansion of interdependent and complex networks of individuals that seek to complement the greater international community. These contemporary universes working in tandem with ICT and OSINT have resulted in fluid, adaptive cognitive paradigms resilient to fear-based tactics that seek to rob these individuals of their capacity to engage in citizen participation or sustainable community development and express their authentic voices.

Fluid intelligence indicates the ability to solve complex problems in novel and diverse situations. This ability allows individuals to adapt cognitively in “unfamiliar domains using general reasoning processes” and has been shown to predict “criminality, civic participation and educational attainment” (Kyllonen & Kell, 2017, p. 16).

The theory of fluid intelligence specifies that level of Gf in an individual is determined by the degree of complexity of relations in a hierarchy of relations that a person can insightfully respond to no matter what cultural domain the complexity exists or through whatever sensory input is presented. (Cattell & Horn, 1978, p. 141)

The more advanced an individual's formal education, the higher the crystallized intelligence. Although crystallized intelligence and fluid intelligence can in many ways be interdependent, fluid intelligence is an ability that is developed by constant engagement, interaction and intellectual curiosity. If the capacity to exercise fluid thinking has not matured, crystallized intelligence will have little effect on fluid intelligence and will be the dominant mode of thinking (Kyllonen & Kell, 2017).

Fluid intelligence is an ability that allows individuals and groups to use critical thinking skills and diverse learning opportunities to manifest paradigms that support changing and/or uncertain, complex environments. These complex environments and learning opportunities strengthen fluid intelligence. Abilities are "unobserved latent variables whose interrelationships cannot be accounted for by a general factor" (Kyllonen & Kell, 2017, p.17). In other words, they are a complex set of qualities that can give meaning to crystallized knowledge and experiences in diverse contexts. Fluid intelligence indicates an individual's capacity to think critically from a variety of vantage points in a dynamic local, regional, and international landscape. Glassman and Kang (2011) contended that ICT and OSINT cultivate and strengthen fluid intelligence.

OSINT has two main functions: gathering, encoding, and combining information to solve targeted problems, and increasing trust among users actively engaged in solving the problems (Glassman & Kang, 2012). International and independent civil service organizations have been historically integral in representing the interests and needs of non-state actors both regionally and

internationally and still play an essential role in promoting human rights, enhancing social protection, and sustaining cultural identities (Malit & Youha, 2014). However, manifestations of individuals and social online communities that give voice to challenges inherent in non-adaptive governing systems have emerged and have been shown to be more effective from the *bottom up*, with OSINT and ICT driving and sustaining them. Glassman and Kang (2012) contended that sustained usage of ICT facilitates continuous exposure to OSINT and strengthens user tendencies towards adaptive cognition or fluid intellect. The researchers also noted that intellectual curiosity and creative insight in the face of seemingly insurmountable conditions are changing the way people respond to oppression and the solutions they devise to affect change.

#### Motivation and Opportunity

Kyllonen and Kell (2017) asserted that “Gf or (fluid intelligence) is invested in *learning* so that the rate of learning different tasks depends on Gf (along with motivation and opportunities to learn)” (p. 16). Scale represented by internet access is a good measure of opportunity, and political preferences can indicate motivation in a given state. Drawing upon the concept of investment as motivation and opportunity, the more motivated civilians within a population are to participate in government and civil society (interest in politics and citizen participation), the more opportunities there are to learn in the context of diverse ICT and OSINT engagement, and the more engaged the population is in utilizing these technologies in everyday life, the more likely they are to make evolutionary contributions to civil society and government from a position of strength (or high



fluid intellect). This is a powerful dynamic in an adaptive governing system that responds to the needs of their population and is likely to result in favorable quality of life thresholds that meet expectations and make quality contributions to sustainable development.

In non-adaptive governing systems, high motivation to engage in government and civil society, unlimited learning opportunities, and fluid intelligence can lead to contributions from a position of fluid strength, but on the defense. For instance, one might argue that in a non-adaptive regime, the more motivated one is to contribute to civil society with higher levels of governmental constraint and the same opportunities of those highly motivated (with high levels of fluid intelligence) in adaptive regimes, may be more inclined to resort to dysfunctional and destructive coping mechanisms (e.g., extremist behavior).

In non-adaptive regimes, individuals and groups are likely to spend massive amounts of time and energy engaging ICT and OSINT to come up with destructive—albeit creative—ways to create organizations, systems, and networks that can fulfill unmet quality of life expectations (e.g., the creation of and sustenance of caliphates and other extremist groups). It may also be the case that civilians engage in innovative reformation tactics that can incrementally result in progressive change. Both are moderated by motivation, levels of dissatisfaction, and trust; resources; and as type and degree of OSINT exposure.

## Adaptive Governance and Citizen Participation: Building Cognitive and Civil Resilience

The interaction effects of adaptive governance, ICT, and OSINT play an integral role in building adaptive cognitive resilience in populations within Middle Eastern gulf monarchies. In the past, the gulf monarchies have created and implemented legislation that has repressed freedom of speech (both on and offline) and violated human rights (Global Voices, 2017). Since then, many tools have been developed to assess human development, economics, and corruption within in the global community. CIVICUS is a global civil science alliance that created an index that assesses civil freedom on a continuum that reflects open, narrowed, obstructed, repressed, and closed societies (CIVICUS Monitor, 2017). CIVICUS has categorized the gulf region of the Middle East as obstructed and repressed.

In CAS, actors and governing systems rely on the interaction and feedback of endogenous and exogenous variables like institutions, organizations, systems, and networks for development and longevity. A realization of the weight and impact of this concept can lead to strategies that lead to sustainable communities, conflict transformation, and long-term stability, as opposed to antiquated fear-based tactics that promote subjugation, disempowerment, and communal stagnation.

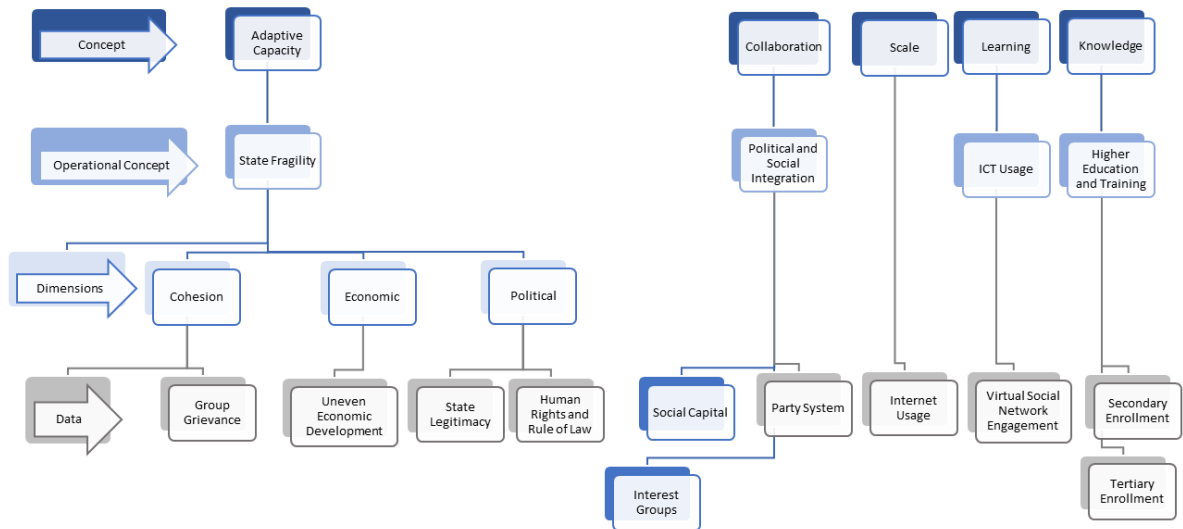
## CHAPTER THREE

### METHODS

A dataset was created from five diverse sources to analyze patterns, trends, interactions, and emergent outcomes using an interdisciplinary, multivariate approach. The dataset was first analyzed using process tracing to determine the most relevant and robust independent and dependent variables from which to draw conclusions. The variables were categorized by concept, operational concept, dimensions, and data. Separate analyses were conducted using a proprietary method to standardize measures across datasets and quantify interactions, patterns, and trends between variables. This method, referred to in the study as Periploko (which means complexity in Greek), enabled a more nuanced and standardized comparison of scores between operational concepts, dimensions, and data, enabling a general measurement of the interactions or impact of a variable or combination of variables by state.

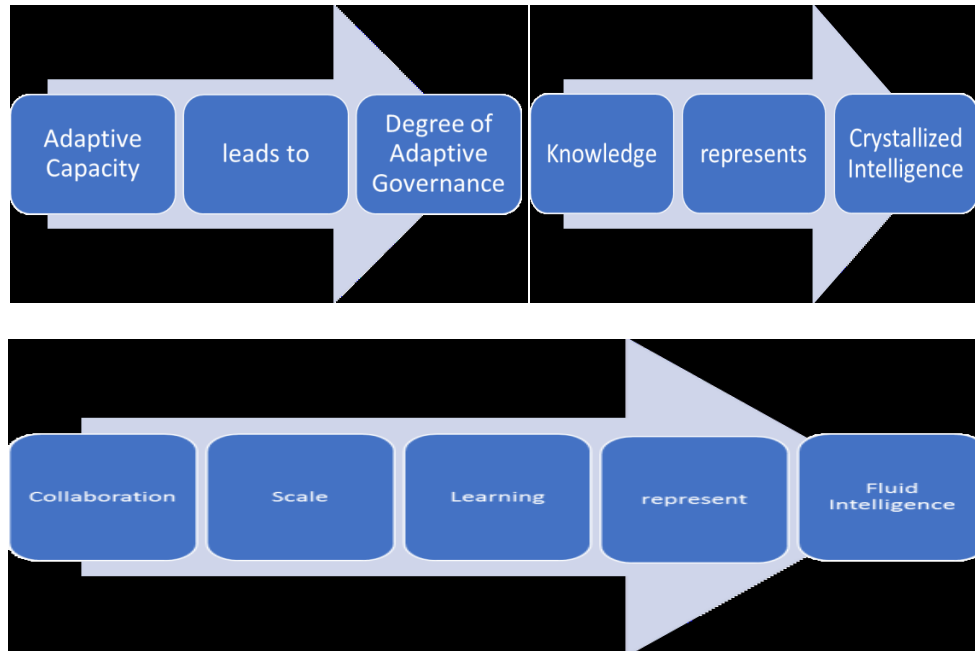
Key concepts included “adaptive capacity, collaboration, scale, learning and knowledge” (Karpouzoglou et al., 2015, p.1). Operational concepts identified included state fragility, political and social integration, ICT usage, and higher education and training. Dimensions of state fragility included cohesion, economic, and political components. The base level data itself represented each concept with different levels of impact. The data analyzed in the study included group grievance, uneven economic development, state legitimacy, human rights and the rule of law, social capital, interest groups, party systems, internet usage,

virtual social network engagement, and secondary/tertiary education enrollment (see Figure 3).



*Figure 3. Variable explanation. Adapted from Fragile States Index, Bertelsmann Index; World Economic Forum Global Competition Index; World Economic Forum Networked Readiness Index; International Telecommunications Union; Karpouzoglou, T., Dewulf, A., & Clark, J. (2016); Bichler, Gisela (2018)*

The combination of learning, collaboration, and scale make up a process that leads to fluid intelligence; higher education and training are representative of knowledge; and adaptive capacity is a higher-level concept that characterizes adaptive governance (see Figure 4).



*Figure 4.* Tracing the process of adaptive governance, fluid, and crystallized intelligence. Adapted from Cattell & Horn, 1978; Karpouzoglou, T., Dewulf, A., & Clark, J. (2016)

From a more granular, operational/data perspective, fluid intelligence was measured by virtual social network engagement, political and social integration, and internet usage respectively; knowledge was a measure of higher education training; and adaptive capacity was determined by state fragility data.

Quantitative results from the operational data analysis were compared and contrasted with qualitative research gleaned from case studies of government and population activity within the Kingdom of Saudi Arabia, the State of Kuwait, the Sultanate of Oman, the UAE, the Kingdom of Bahrain, and the State of Qatar.

The effects of emergent outcomes based on the interaction of various combinations of variables were analyzed to identify degrees of impact in diverse contexts. It was necessary to isolate the most non-adaptive and adaptive states as well as states with the highest levels of fluid intelligence with the most

effective measure of stability in order to answer the research question successfully. Once these states emerged, concepts, operational concepts, dimensions, and data were used to assess strengths, weaknesses, similarities, and differences to guide a complex comparative case study analysis on each state and/or group of states.

### Data Sources

The overall dataset was derived from five datasets: Fragile States Index (FSI), Bertelsmann Transformation Index (BTI), the International Telecommunications Union (ITU), the World Economic Forum Global Information Technology Report, and the World Economic Forum Global Competitiveness Index. The dataset was divided into concepts, operational concepts, dimensions, and data. Not all operational concepts had accompanying dimensions and only the most relevant dimensions and data were included.

The FSI was developed by the Fund for Peace and based on a conflict assessment framework known as CAST, which “measures vulnerability in pre-conflict, active conflict and post conflict situations” (Fragile States Index Methodology, 2018, p. 4). FSI measures fragility in four areas: “cohesion, economics, politics and society” (FSI Methodology, 2018, p. 4). It also uses more disaggregate data categories to separate fragility into its component parts. For instance, the data for cohesion include “security apparatus, factionalized elites and group grievance;” economics is made up of “economic decline, uneven economic development and human flight and brain drain;” “state legitimacy, public services, human rights and rule of law” represent politics; and

“demographic pressures, refugees and IDPs and external intervention” are the social factors (FSI Indicators, 2018, para. 3).

The BTI (2017) publishes a “transformation index” (para. 1) that measures state propensities for democracy. In the BTI dataset, sovereign states that did not have fully developed democracies with populations over 2 million were chosen for analysis. The operational variables used to measure the state of democracies included: “stateness, political participation, rule of law, stability of democratic institutions and political and social integration” (BTI Codebook, 2016, para. 14). Political and social integration were used in the study to represent collaboration. Political and social integration included four granular data categories: “party system, interest groups, approval of democracy and social capital” (BTI Codebook, 2016, p. 23). Social capital was later identified as a more representative indicator of collaboration as illustrated in Phase 4 of the results.

The ITU (2017) is a United Nations specialized agency for ICT. ITU’s main goal is to promote consensus between the public and private sectors to advance the ICT industry. ICT included “fixed telephone lines, mobile cellular subscriptions, fixed broadband subscriptions and individuals using the internet” (Key Global ICT Indicators from ITU, 2017 para. 1). Internet usage in gulf monarchies was measured using this dataset.

The World Economic Forum publishes a Global Information Technology Report that established the Networked Readiness Index (NRI). The NRI is a tool that assesses state readiness to take advantage of the ubiquitous opportunities

and resources available on the net to determine how economies maximize information communication technologies (NRI Codebook, 2017). This index measures drivers and impacts which are broken down into three sub-indexes: “the environment, usage and readiness” (NRI Codebook, 2017, p. xi). Data were gleaned from the United Nations (UN), United Nations Education, Scientific and Cultural Organization (UNESCO), World Bank, and the International Telecommunications Union (ITU) to form the comprehensive index. Virtual network usage data was measured from this set to represent ICT usage and learning.

The World Economic Forum (2016-2017) also publishes a Global Competitive Index (GCI) every year to assess state productivity and competitiveness in the international market. The index includes three sub-indexes: “basic requirements, efficiency enhancers and innovation and sophistication factors” (Global Competitive Index, 2017, p. 12). These sub-indexes include indicators and criteria (or pillars) in each section. Basic requirements are composed of four pillars, including “institutions, infrastructure, macroenvironment and health and primary education” (GCI, 2017, p. 12). Efficiency enhancers have six pillars: “higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness and market size” (GCI, 2017, p. 12). Finally, innovation and sophistication factors include measures of business and creative transformation (GCI, 2017, p.12). The fifth pillar, higher education, was chosen



from this dataset as a measure of secondary and tertiary education, or knowledge/crystallized intelligence.

### Five Key Concepts Used in the Study

#### Adaptive Capacity

Piplas (2012) defined adaptive capacity as “flexibility that allows a better adjustment to new contexts and changing conditions in terms of behavior, values and orientations” (p. 3). The Fund for Peace developed an index assessing government fragility. The operational concepts in their dataset are categorized as “cohesion, economic, political and social” and are based on a conflict assessment framework originally designed to measure a state’s vulnerability to collapse (The Fragile States Index, 2017, para. 2). I used the FSI to examine the following data—“group grievance, uneven economic development, state legitimacy and human rights”—in each of the gulf monarchies from 2007-2017 (FSI Indicators, 2017, para. 3). The Country Dashboard and other interactive functions on the website supported a comprehensive comparative exploration.

#### Collaboration

Political and social integration can reveal patterns of collaboration between governments and the governed. The Bertelsmann Transformation Index generally measures political and economic transformation and transformation management using the dimensions of “stateness, political participation, rule of law, stability of democratic institutions and political and social integration” (Bertelsmanns Codebook, 2016, p. 23). This index “analyzes and evaluates whether and how developing countries and countries in transition are steering

social change toward democracy and a market economy” (Bertelsmann, 2018, para. 1). Measures of collaboration were cross referenced to gauge levels of civil engagement in isolation and compared to other gulf monarchies.

### Scale

Scale represents scope in this analysis. The Cambridge Dictionary (2018) defined scope as “the opportunity for activity or a range in consideration of a particular subject” (para. 1). Scale can refer to the range of learning opportunities and diverse mechanisms for the transference of OSINT. Internet usage derived from the ITU dataset was used to measure scale.

### Learning

Learning was first assessed as a function of virtual social network engagement. Levels of ICT engagement assume equal levels of exposure to OSINT as ICT are mechanisms by which the media, OSINT are shared. In other words, ICT are tools and platforms that carry the information to the end user. The internet contains OSINT and ICT from all over the world, accessible to most individuals throughout the world at different degrees. The data from the NRI were used to assess virtual social network usage in gulf monarchical regimes. The degree of ICT engagement personified by virtual social network engagement (or learning), indicated the level of opportunities, diverse mechanisms, and exposure to OSINT with which a citizen can engage to develop fluid intelligence.

### Knowledge

Learning is dynamic, but knowledge is static. Crystallized intelligence is a measure of structured knowledge from which one can draw that has been

calcified into worldviews or memory based on experience and/or formal education (Cattell & Horn, 1978). Secondary and tertiary higher education was used to assess crystallized learning as a function of knowledge. This can also indicate OSINT engaged with in a familiar context that does not necessarily cross disciplinary lines. A careful comparative analysis of the concepts, operational concepts, dimensions, and data distinguishing crystallized intelligence from fluid intelligence was conducted using the Periploko Method.

## CHAPTER FOUR

### RESULTS

The following sections use adaptive capacity, collaboration, scale, knowledge, and learning to reveal patterns and trends that helped establish any possible correlation between fluid intelligence (learning, scale, and collaboration) and adaptive governance (adaptive capacity) in gulf monarchies in the Middle East. The research was divided into five phases. The first phase included a categorization by monarchical type. The second included a more granular assessment of patterns and trends independent of monarchy type, including relationships between ICT usage (learning) and higher education enrollment (knowledge). The third examined links between adaptive governance and fluid intelligence mediating between strength of governance, fluid intelligence, and social capital (collaboration) using the Periploko Method. The fourth phase analyzed the distinctions between adaptive governance and fluid intelligence between the most adaptive and most non-adaptive regime, integrating interest groups as a mediator. Finally, the fifth phase, the final analysis, included a comparison of virtual social network engagement (learning), social capital (collaboration), and scale (internet usage) between the most adaptive and non-adaptive states to determine the impact of fluid intelligence and governance on stability (indicated by group grievance) in the Middle East.

## Phase 1: Comparative Analysis by Monarchy Type

Each monarchy was first categorized by type: absolute, constitutional, or federation. Next, a comparative analysis of concepts (adaptive capacity, collaboration, scale, knowledge, and learning) was conducted across diverse datasets. Then, each group was analyzed and differences were noted in the interpretation of each dataset's scales along with consistent patterns and trends.

### Absolute Monarchies

Three nations were classed as absolute monarchies: the Sultanate of Oman, the State of Qatar, and the Kingdom of Saudi Arabia. Oman led in political and social integration from 2008-2012, but Qatar managed to overtake all three absolute monarchies from 2014. Saudi Arabia has remained consistently very low in political and social integration throughout the time frame of the study. All three monarchies have much lower than average levels of political and social integration on a scale of 1-10. All three monarchies have experienced above average levels of ICT engagement.

### Constitutional Monarchies

Two states in this sample are constitutional monarchies—The Kingdom of Bahrain and the State of Kuwait. Bahrain maintained consistent secondary and tertiary education enrollment over the course of the study, whereas Kuwait experienced an increase of about 10%. Kuwait and Bahrain experienced consistent and gradual increases in virtual social network usage, and both states had 14% or less of maximum ICT usage.

## Federation of Monarchies

The UAE, the only federal monarchy in the study, exhibited constant low political and social integration from 2008-2016. However, its social capital has increased by 20% to 6 out of 10; an above average rating. Over the past 10 years, the UAE has maintained an average internet usage above 85%, with a population permeation above 90% in 2016. Secondary and tertiary education enrollment has remained consistent in the UAE, with a sudden spike in 2014. The UAE experienced the most substantial growth of all monarchies from 6.7 to 8.6 (see Figure 5). After analyzing patterns and trends, no outstanding patterns across concepts (knowledge, learning, scale, collaboration, or adaptive capacity) were found to be specific to one type of monarchy.

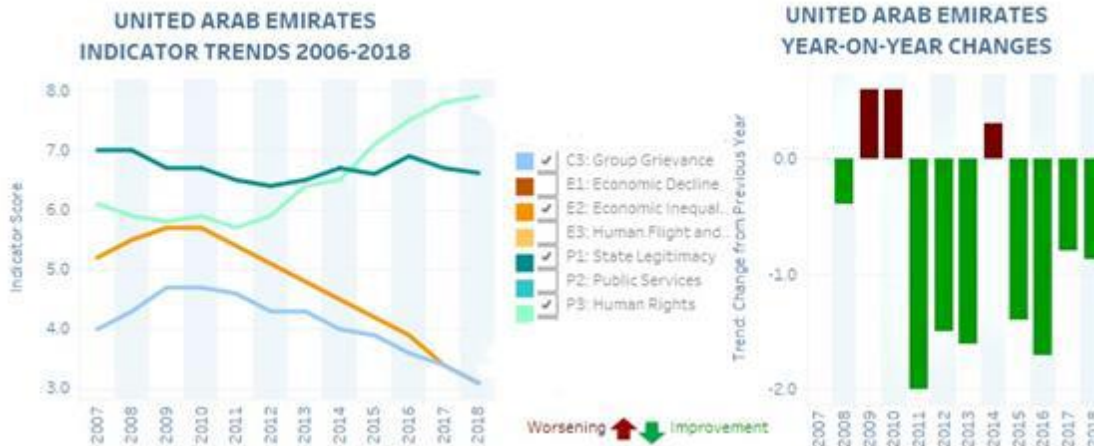
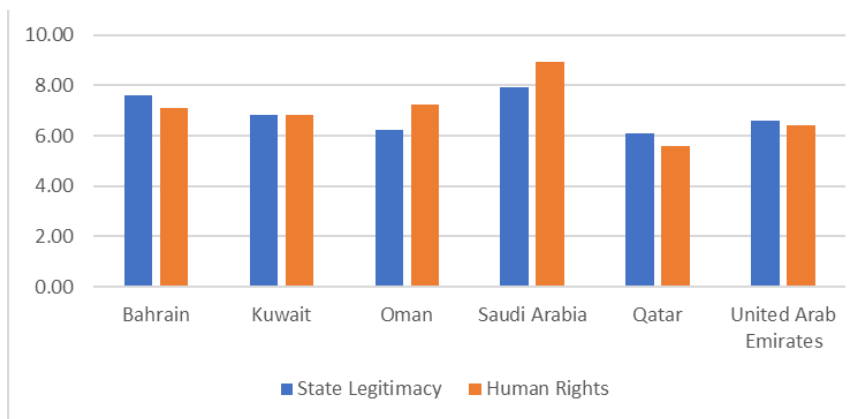


Figure 5. The United Arab Emirates fragile state data, 2007-2017. Source: FSI, 2017

Overall, this analysis discovered monarchies that shared more granular characteristics within a specific operational concept (e.g., similar levels of state legitimacy and human rights abuses under the operational concept, state

fragility). For instance, Saudi Arabia and Bahrain revealed a consistent combination of political (human rights, state legitimacy) and cohesion (group grievance measures) above 7 throughout the study period. The UAE has shown a consistent decline in group grievance with a score of 3.1: the lowest of all monarchies examined in the Gulf. In terms of more specific data representative of state frailty, all the gulf monarchies were consistently most fragile in human rights and state legitimacy over the scope of the study (see Figure 6).



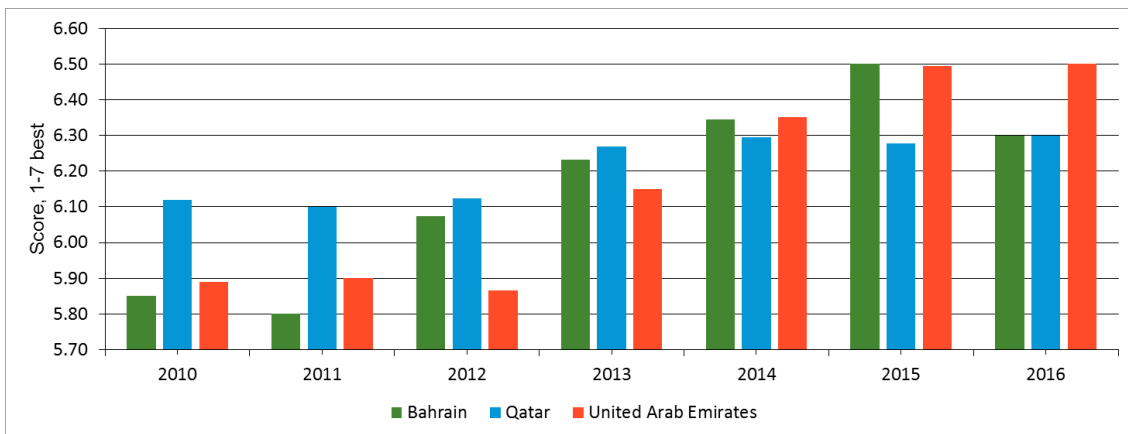
*Figure 6.* A comparison of state legitimacy and human rights in the gulf monarchies. Source: FSI, 2017 (averages of state legitimacy and human rights between 2010 and 2016) on a scale of 1-10 (1 best and 10 worst)

## Phase 2: A More Granular Assessment of Patterns and Trends

After taking note of consistent patterns and trends by monarchy, states were identified that were adaptive or non-adaptive, as well as states representing consistencies in diverse combinations. In other words, operational concepts and data were analyzed in isolation or combinations that were consistent over time and grouped by state. Data that had a consistent impact on another set of data

(e.g., outcomes congruent with changing patterns and trends) were noted and considered. Process tracing was employed until states that shared similar characteristics, strengths, and weaknesses were identified.

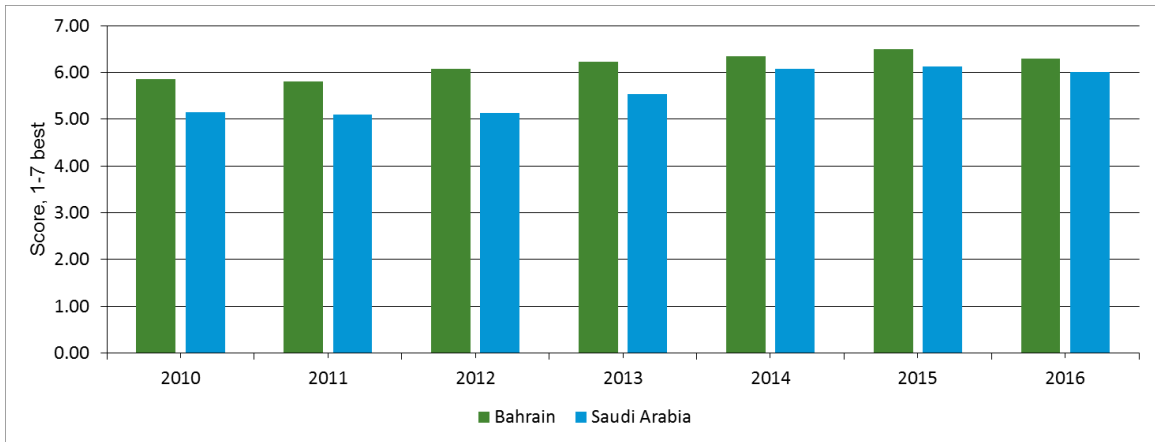
Bahrain, Qatar, and the UAE led in internet usage between the three GCC countries throughout the scope of the study. These countries also experienced incremental increases in virtual social network or ICT usage between 2010 and 2016, with Bahrain at 6.5 on a scale of 1-7 (see Figure 7).



*Figure 7.* Virtual network engagement in Bahrain, Qatar, and the United Arab Emirates, 2010-2016. Source: Knoema and NRI, 2017

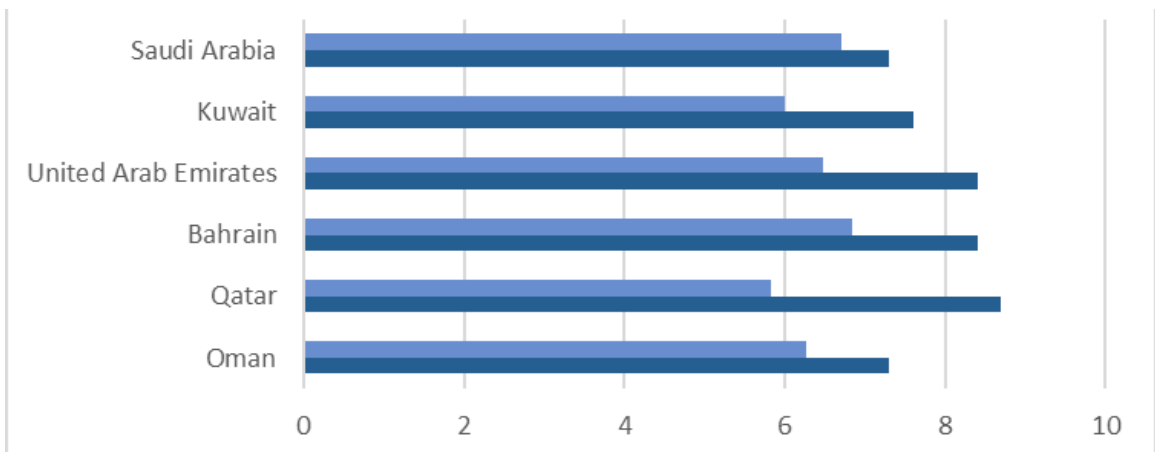
Bahrain and Saudi Arabia had consistently above average levels of secondary and tertiary enrollment, with an average of about 6 on a scale of 1-7 (See Figure 8).



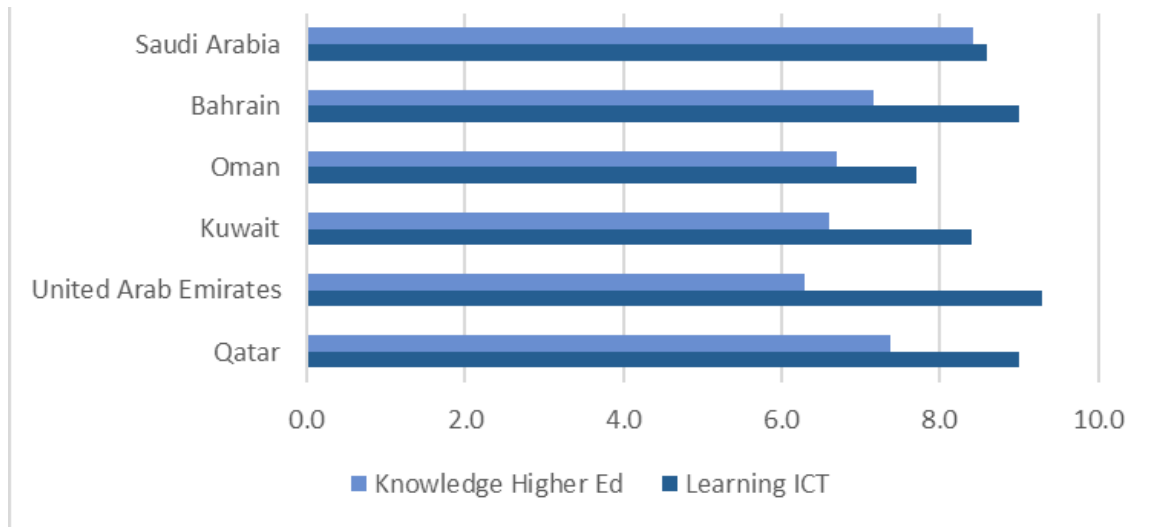


*Figure 8.* Higher education enrollment in Bahrain and Saudi Arabia, 2010-2016. Source: Knoema and BTI, 2018

Saudi Arabia had the most balanced engagement between ICT and higher education, whereas Qatar substantially succeeded higher education levels with ICT engagement in 2010. In 2016, Saudi Arabia had almost equal levels of secondary and tertiary education enrollment and virtual social network usage, whereas in the UAE, virtual social network usage dominated (see Figures 9 and 10).



*Figure 9. Comparison of information and communication technologies usage, higher education and training in the Gulf: Scores in 2010. Source: BTI, 2017*



*Figure 10. Comparison of information and communication technologies usage, higher education and training in the Gulf: Scores in 2016. Source: BTI, 2017*

### Phase 3: The Periploko Method

Integrating all data using the Periploko Method permitted comparison between 2010 and 2016. States were categorized on a scale of 1-3: 1 meaning good or high engagement, 2 meaning moderate or moderate engagement, and 3 meaning poor or weak engagement based on scores from 2010 (1 year before the Arab Spring) and 2016 (5 years after). This technique was developed to standardize data drawn from diverse datasets into one scale that would allow me to more easily compare operational concepts and granular data within and between sets and group them into meaningful combinations with greater ease.

The method was also designed to measure interactions through pattern recognition (see Tables 1 and 2).

ICT usage and quantity of education indicators were evaluated on a scale of 1-7 as opposed to the other indicators, which used a scale of 1-10. Those indicators were adjusted to my 1-3 scale by dividing each score by .7, adding 30% to the score to make them congruent with the rest. State frailty measures were adjusted to represent adaptive or non-adaptive regimes using the same 1-3 scale (1 representing the most adaptive regimes).

States were scored on each measure, then grouped by highest and lowest score in duos (e.g., the top two states in virtual network engagement would get a 1, the next highest a 2, etc.). If three states had the same level of engagement based on the original dataset, each would get the same score. After scores were calculated across operational concepts and data, they were put in a table by country categorized by adaptive governance, fluid intelligence, and crystallized intelligence for greater ease of understanding.

Among Qatar, the UAE, and Bahrain, Qatar had the lowest levels of crystallized intelligence, whereas in 2016 the UAE had the lowest levels. These two countries were also the most stable and adaptive. Bahrain had the highest levels of crystallized intelligence within its population in 2010 and 2016, yet was the most unstable. This indicates that crystallized intelligence does not necessarily contribute to stability or may even play a part in higher group grievance among Middle Eastern gulf monarchies. All three countries analyzed had high levels of fluid intelligence.

Table 1

*Data and Periploko Scores for Gulf Monarchies by Adaptive Governance, Fluid Intelligence and Crystallized intelligence in 2010*

Country	Adaptive Capacity	P1-AC	AC2-Stability	P1A-S	Collaboration 2	P3-C2	Collaboration	P4	Scale	P5-S	Learning	P6-L	Knowledge	P7-K
	Adaptive Governance				Fluid Intelligence								Crystallized Intelligence	
	State Fragility		Group Grievance		Social Capital		Interest Groups		Internet		Virtual Network Usage		Secondary and Tertiary	
Qatar	51.8	1	5.2	1	2.0	3	3.0	2	69	1	8.7	1	5.8	3
United Arab Emirates	52.4	2	4.7	2	5.0	1	3.0	2	68	1	8.4	1	6.5	2
Bahrain	58.8	2	6.5	3	6.0	1	6.0	1	55	2	8.4	1	6.8	1

Table 2

*Data and Periploko Scores for Gulf Monarchies by Adaptive Governance, Fluid Intelligence and Crystallized intelligence in 2016*

Country	Adaptive Capacity	P1-AC	AC2-Stability	P1A-S	Collaboration 2	P3-C2	Collaboration	P4	Scale	P5-S	Learning	P6-L	Knowledge	P7-K
	Adaptive Governance				Fluid Intelligence								Crystallized Intelligence	
	State Fragility		Group Grievance		Social Capital		Interest Groups		Internet		Virtual Network Usage		Secondary and Tertiary	
Qatar	45.1	1	4.6	2	4.0	2	3.0	2	94	1	9.0	1	7.4	1
United Arab Emirates	44.5	1	3.6	1	6.0	1	2	3	91	2	9.3	1	6.3	3
Bahrain	63.4	3	7.9	3	3.0	2	6.0	1	98	1	9.0	1	7.2	2

Note. AC = Adaptive capacity; C = Collaboration (C2 and C3 are other data representing collaboration); S = Scale; L = Learning; K = Knowledge

In the next analysis, variables are grouped by level of adaptivity (see Tables 3 and 4). Oman and Qatar were most adaptive in 2010, whereas Qatar and the UAE were most adaptive in 2016. Keeping these two most adaptive regimes, fluid intelligence and crystallized intelligence components were analyzed further. Crystallized intelligence was variable, and political and social integration was also variable and extremely low (at or below 3 on a scale of 1-10) among all monarchies, so I eliminated them from further analysis.

Table 3

*Periploko Scores by Degree of Adaptivity: Scores in 2010*

Country	Adaptive Capacity	Collaboration Scale	Learning	Knowledge
Oman	1	2	3	2
Qatar	1	3	1	1
Bahrain	2	1	2	1
United Arab Emirates	2	1	1	1
Kuwait	3	2	2	2
Saudi Arabia	3	3	3	1

Source: FSI, BTI, WEF and ITU; Periploko categorization of variables, indicators and criterion based on individual and clustered results. 1 = good or highly engaged, 2 = moderate or marginally engaged, and 3 = poor or weakly engaged.

Table 4

*Periploko Scores by Degree of Adaptivity: Scores in 2016*

Country	Adaptive Capacity	Collaboration Scale	Learning	Knowledge
Qatar	1	2	1	3
United Arab Emirates	1	1	2	3
Kuwait	2	1	2	2
Oman	2	3	3	2
Bahrain	3	2	1	2
Saudi Arabia	3	3	3	1

Source: FSI, BTI, WEF and ITU; Periploko categorization of variables, indicators and criterion based on individual and clustered results. 1 = good or highly engaged, 2 = moderate or marginally engaged, and 3 = poor or weakly engaged.

Two tables were then created that included only measures from the most adaptive and non-adaptive states, including social capital as a measure of collaboration under fluid intelligence in 2010 and 2016. According to the BTI, social capital means “solidarity and trust among citizens and social self-organization based on cultural, environmental and social associations” (BTI, 2017, p. 24) It was highly appropriate to test this data in the context of the other fluid intelligence variables to assess its impact. In Tables 5 and 6, the most adaptive and non-adaptive states are highlighted in the context of social capital, internet, and ICT for further analysis.

Table 5

*Comparison of Adaptive Governance and Fluid Intelligence: Scores in 2010*

Country	Adaptive Capacity	Collaboration	Scale	Learning	Knowledge
<b>Qatar</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>
Oman	1	2	3	3	3
Kuwait	3	2	2	2	2
<b>Saudi Arabia</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>

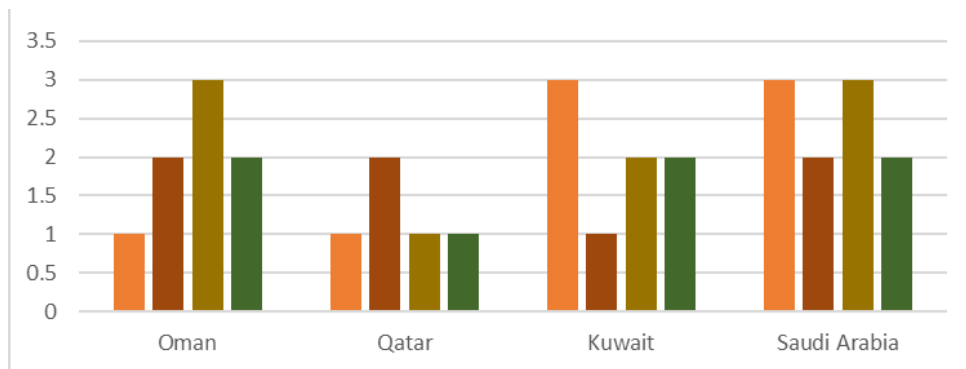
Table 6

*Comparison of Adaptive Governance and Fluid Intelligence: Scores in 2016*

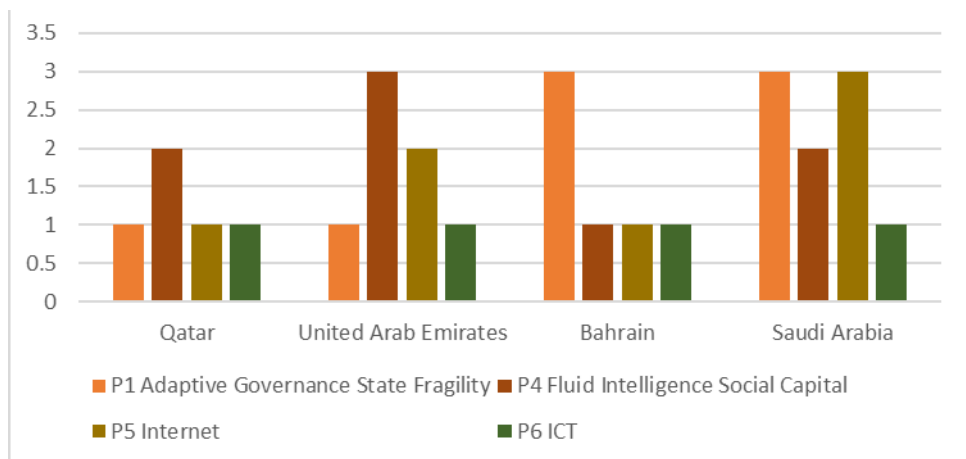
Country	Adaptive Capacity	Collaboration	Scale	Learning	Knowledge
<b>Qatar</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>
<b>United Arab Emirates</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>3</b>
Bahrain	3	2	1	1	2
<b>Saudi Arabia</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>

Qatar and Oman were most adaptive in 2010, whereas Qatar and the UAE were most adaptive in 2016 (See Figures 11 and 12). Kuwait and Saudi

Arabia were the most non-adaptive in 2010, whereas Bahrain and Saudi Arabia were most non-adaptive in 2016. Qatar had the same score in both years, maintaining the highest *collective* adaptivity and fluid intelligence of the sample. Saudi Arabia maintained the most non-adaptive status. It is also important to note that although Bahrain was one of the most non-adaptive nations in 2016, it had the highest fluid intelligence scores in the areas of social capital, internet, and virtual social network usage.



*Figure 11.* Comparison of adaptive governance and fluid intelligence: Scores in 2010. *Note.* Fluid intelligence includes social capital, the internet and ICT usage (1 = best or most engaged). Source: FSI, BTI, WEF, NRI and ITU



*Figure 12.* Comparison of adaptive governance and fluid intelligence: Scores in 2016. *Note.* Fluid intelligence includes social capital, the internet and ICT usage (1 = best or most engaged). Source: FSI, BTI, WEF, NRI and ITU

Bahrain had high levels of social capital in 2010, but experienced a dramatic drop in 2016, whereas Qatar experienced the most dramatic increase 2016 (see Figures 13 and 14). Overall, the UAE had the highest social capital in 2016. After noting these trends, Bahrain’s results were compared to Qatar in 2010 and 2016.

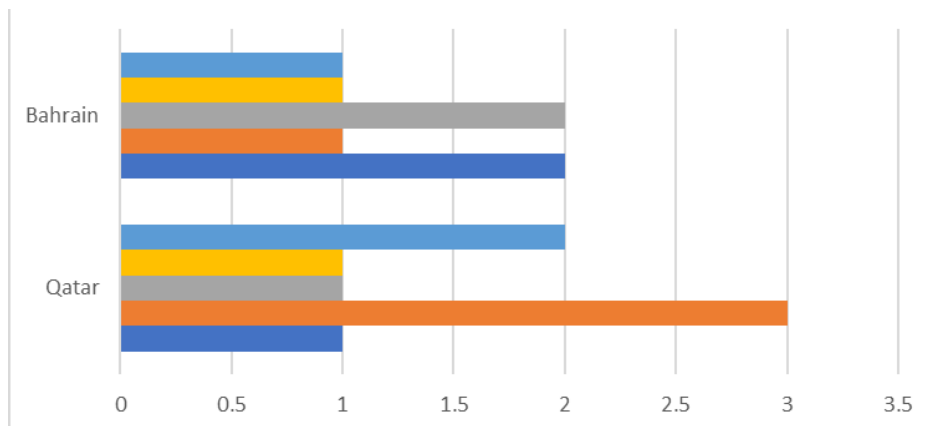


Figure 13. Comparison between Bahrain and Qatar: Scores in 2010. Source: FSI, BTI, WEF, NRI and ITU

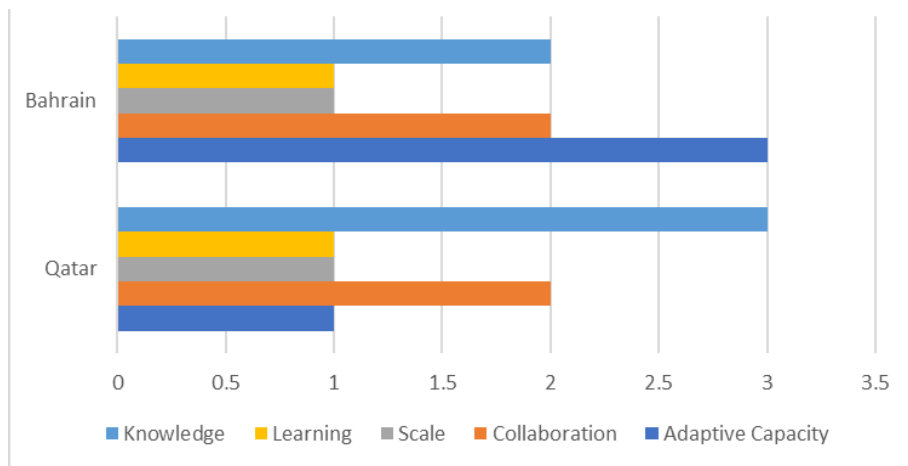


Figure 14. Comparison between Bahrain and Qatar: Scores in 2016. Source: FSI, BTI, WEF, NRI and ITU



The most significant difference in variables between these two monarchies was degree of adaptive governance. Levels of fluid intelligence were high in both Qatar and Bahrain in 2010 and 2016. However, Qatar was twice as adaptive as Bahrain.

#### Phase 4: Adaptive Governance and Fluid Intelligence

In Phase 3, I created a table composed of states strong in adaptive governance and fluid intelligence (internet usage-scope, social capital-collaboration, and ICT usage-learning) which include: states weak in adaptive governance and fluid intelligence; states weak in adaptive governance, but strong in fluid intelligence; and states strong in adaptive governance but weak in fluid intelligence, to assess any additional consistencies between the levels of government adaptivity (see Table 7). I found that fluid intelligence was extremely strong in the UAE (the second most adaptive regime) and Saudi Arabia (the most non-adaptive regime).

Table 7

#### *Adaptive and Non-Adaptive Gulf Monarchies Compared with Fluid Intelligence*

##### *Ranking*

Country	Adaptive Capacity		Learning/Scope
	Strong	Weak	Strong/Moderate
Qatar	1		1
United Arab Emirates	1		1
Bahrain		3	1
Saudi Arabia		3	2

*Note.* 1 = Best or highly engaged; 2 = Moderately or nominally engaged; and 3 = rarely or not engaged, 2010-2016. Saudi Arabia could be classified as a 1 in Learning as the measures between states were so narrow and all gulf monarchies are close to saturation

in virtual network engagement. *Source:* Periploko Method, based on data from FSI, the BTI, the ITU and World Economic Forum.

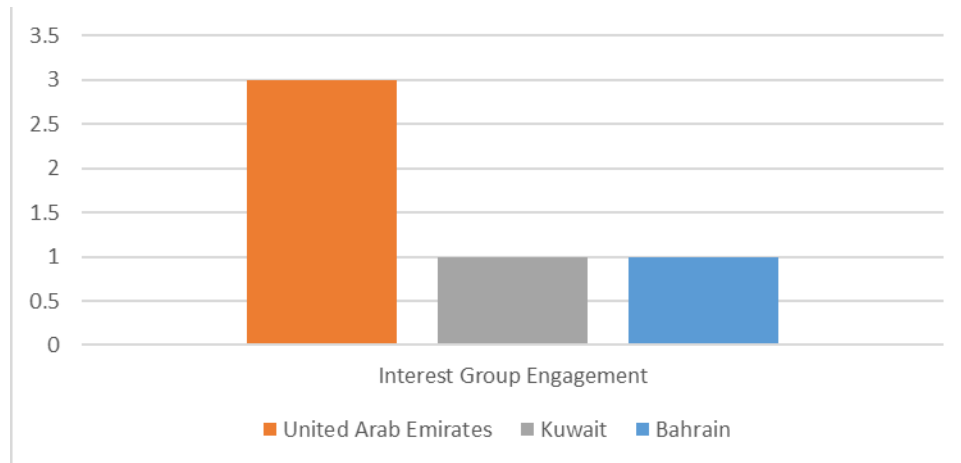
Because of the high and consistent levels of fluid intelligence in Bahrain, Qatar, and the UAE compared to the radical drop in social capital (collaboration) in Bahrain and high levels of social capital in the UAE in 2016, it was necessary to examine another aspect of collaboration (under fluid intelligence) to examine any other influences that might give additional clues regarding the degree to which collaboration affects fluid intelligence and stability in the Middle East. Interest groups can affect collaboration between the government and the governed. A comparison between interest groups and social capital was chosen to assess any relationships between them.

In addition, instead of just relying on a measure of state frailty, which includes an average of other data components, the state fragility index measure was disaggregated to include more granular data representative of group grievance, keeping state frailty as the independent variable and virtual social network usage moderated by social capital as indicators of fluid intelligence to further assess its degree of influence on group grievance (or instability) in gulf monarchies.

#### Phase 5: Adaptive Governance, Fluid Intelligence and Stability

In the last phase, interest groups were included from the concept of collaboration to assess its impact on fluid intelligence. It was necessary to determine how collaboration was best represented in monarchies as opposed to strictly democratic governing systems. Economic and non-economic interest

groups are high affinity networks that promote their interests to influence government decisions (Cliffs Notes, 2017). Figure 15 represents them both in the aggregate.

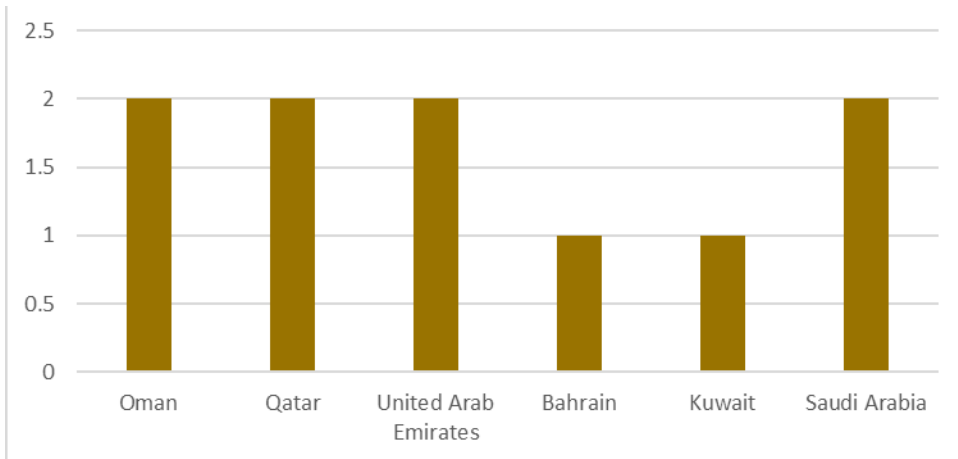


*Figure 15.* Measures of interest group engagement in the United Arab Emirates, Kuwait, and Bahrain in 2016. Source: BTI.

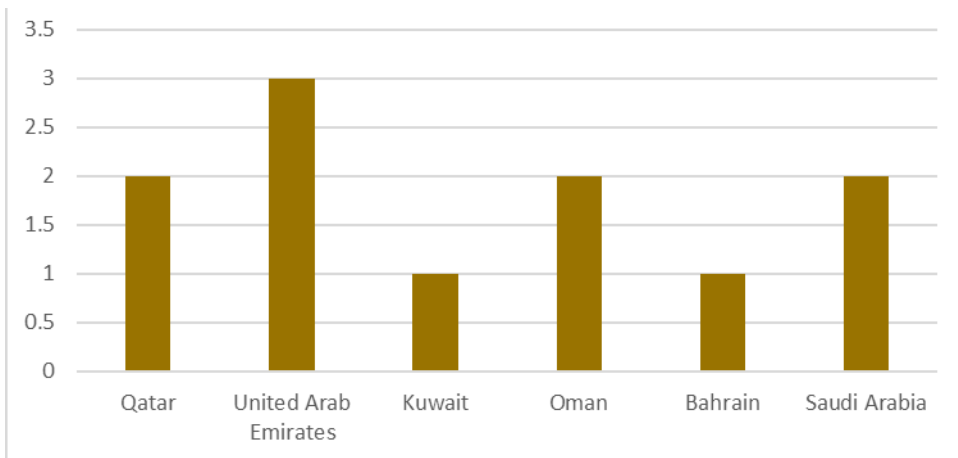
Bahrain and Kuwait consistently maintained the highest percentages of interest group activity over the course of the study while the UAE had the lowest. However, the UAE maintained the highest percentages of social capital, but its interest group engagement was moderate from 2012.

It was interesting to note that although Bahrain and Kuwait share this special combination of high interest group engagement, Bahrain had experienced substantially higher levels of group grievance than Kuwait between 2010 and 2016 (see Figures 16 and 17). However, Kuwait's group grievance levels worsened between 2014 and 2017. The fact that the UAE and Qatar, the two most adaptive governments, had moderate interest group engagement indicates

that interest group engagement did not necessary play a key factor in maintaining stability in gulf monarchies.



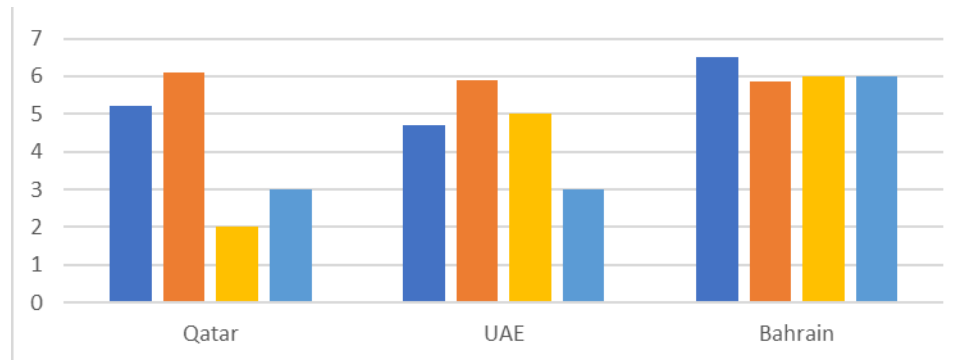
*Figure 16.* Interest group engagement in the Gulf Cooperation Council: Scores in 2010.



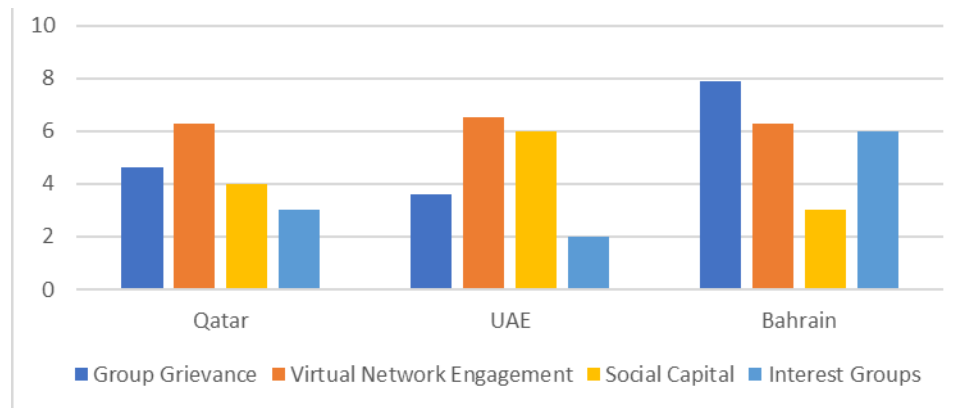
*Figure 17.* Interest group engagement in the Gulf Cooperation Council: Scores in 2016.

A comparison of interest group engagement between Bahrain, the UAE, and Qatar revealed that populations are and continue to be the most highly

engaged in Bahrain (see Figures 18 and 19). Group grievance rates are equally high. However, in the UAE, interest group engagement decreased significantly by 50% between 2010 and 2016, with group grievance at an all-time low.



*Figure 18.* Influence of information and communication technologies, interest groups, and social capital on group grievance: Scores in 2010. Source: FST, BTI, and WEF Global Competitive Index.

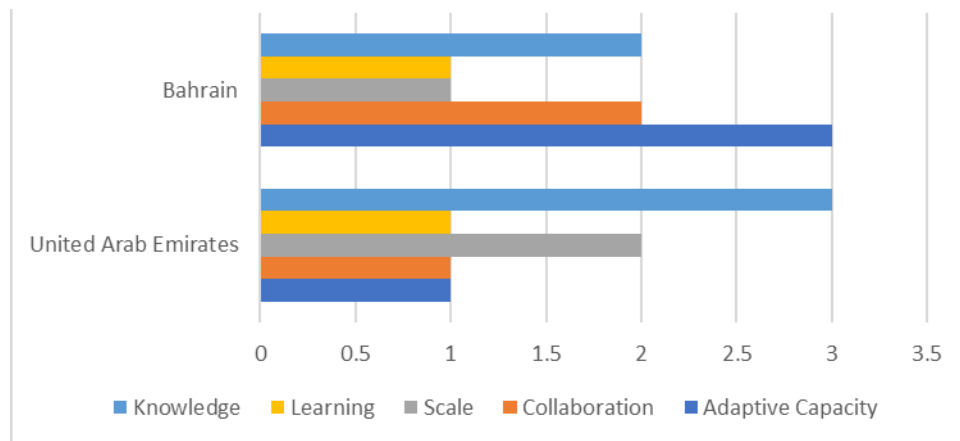


*Figure 19.* Influence of information and communication technologies, interest groups, and social capital on group grievance: Scores in 2016. Source: FST, BTI, and WEF Global Competitive Index.

Bahrain and the UAE scored highest in three capacities in 2016 (see Figure 20). In both 2010 and 2016, the UAE scored highest in collaboration,

social capital, and learning. Bahrain was the most non-adaptive monarchy in 2016, yet scored highest in scope, learning, and knowledge. Saudi Arabia was the next non-adaptive monarchical system, but scored among the highest in knowledge.

Bahrain had significantly higher levels of group grievance than the UAE in 2010 and increased those levels to the highest of all gulf monarchies. Levels of group grievance in the UAE decreased, but learning and social capital were high in the nation in 2010. Bahrain had very high scores in learning, but was significantly lower in social capital (collaboration) in 2016. Qatar, Kuwait, and the UAE had high scores in learning and social capital (Qatar experienced the most significant increase in social capital [by 50%] from 2010 to 2016). The similarities in levels of collaboration (social capital), scope, and learning compared to lower levels of group grievance among adaptive monarchical regimes are highly significant in that they reveal a moderate correlation between fluid intelligence and stability in adaptive regimes.



*Figure 20.* Final analysis of adaptive and non-adaptive regimes comparing stability (group grievance), fluid intelligence (social capital, internet usage and

virtual social network usage) and crystallized intelligence (higher education), 2016.

Overall, Bahrain (one of the least adaptive or most non-adaptive monarchies) experienced a significant increase in group grievance and a dramatic decrease in social capital from 2012 to 2016. The UAE (the most adaptive monarchy overall) experienced a marked decrease in group grievance since 2010 and earned one of the lowest fragile state index scores of all monarchies.

## CHAPTER FIVE

### DISCUSSION

The question I sought to answer was whether fluid intelligence through ICT and OSINT engagement in civilian populations influenced the stability of gulf monarchies in the Middle East. I used an interdisciplinary approach that included comparative case study analysis, process tracing, and the Periploko Method to develop a typology that measured patterns and trends to reveal distinctions, correlations, and insights about the data in context. The datasets were drawn from the FSI, the BTI, the ITU, the World Economic Forum Global Competitiveness Report, and the World Economic Forum Network Readiness Index.

#### Summary of Case Studies

Steinberg (2014) asserted that the Kingdoms of Saudi Arabia and Bahrain's most pressing threat is the influence of Shiite groups within their populations who have experienced discrimination and marginalization to a large degree in both states; however, the majority of those in protest desire regime change as opposed to reform to support a higher quality of life and are supported by the state of Iran in that endeavor. Uprisings in these states (including the Pearl or February 14<sup>th</sup> Revolution in Bahrain) were a continuance of a fundamental and ongoing challenge of curbing the influence of Shia ideologies in these gulf monarchical regimes.



The state of Qatar has also experienced pushback from their civilian populations due to “domestic discontent against the ruling family’s economic and social policies” (Razavi, 2018, para. 6). The state has also experienced contention from its fellow gulf monarchical leaders because of their alleged support for the Islamist group, the Muslim Brotherhood. Saudi Arabia, Bahrain, Oman, and the UAE have expressed their discontent with Qatar’s business relationship (shared natural gas resources) with the Iranian leadership and alleged ties to extremist groups through blockades and the withdrawal of diplomatic representatives (Hansen, 2017).

Although little is found in the media about activities that take place in Oman, the sultanate has had its share of Arab Spring incidents due to a “neglected political reform process;” divisions within Omani society (especially amongst the Indians and Pakistani people); high food prices; low teacher wages; and corruption (Worrall, 2018, para. 1). Expressions of grievance included social media mobilizations like the chatroom, Sablat al Arab, peaceful sit-ins in Muscat at the Shura council, and the Green Marches, where demonstrators expressed admiration and loyalty for the sultan, but wanted to expose the uncanny practices of merchants and other officials who sought to take advantage of the sultan’s generosity and ignorance of systemic loopholes in commerce and economy (Worrall, 2018).

The State of Kuwait has the most open parliamentary system of all monarchies and contends with population unrest, mainly in politics. The biggest problem has been the influence of Islamist groups on youth populations and their

subsequent popularity as elected bodies (Bandow, 2012). According to Bandow (2012), “70% of the population is under 29” (para. 14) and the Islamist groups have been adept at identifying the overlooked needs of youth populations and exploiting them for their benefit (Bandow, 2012). According to Bandow, because of an Islamic group getting elected into power, the emir changed the electoral system to avoid the introduction of radical beliefs and practices, which resulted in population protest. The overall sentiment in Kuwait is loyalty to their leader, but the people desire more control over the decision-making process. The population in Kuwait has the Gulf’s “oldest elected parliament, most free media and greatest religious liberty” (para. 2); however, these liberties came at the expense of fundamentalist groups who sought to deceptively undermine them by manipulating the vulnerable youth population (Bandow, 2012).

The UAE was the only gulf monarchy that avoided any uprisings during the Arab Spring, though some argue this was due to “state sponsored repression of human rights, advocates and journalists” and legislation that prohibits the expression of dissent or discontent against the state (Abrougi, 2016, para. 2). This is true for both non-permanent residents and citizens. Despite limitations on free expression and privacy, the population enjoys one of the highest prosperity indexes in the world, which reveals a high quality of life (Abrougi, 2016).

In all these cases (with the exception of the UAE), a huge gap between the people’s expectations and what they experienced from their governing systems was inherent in different contexts. In many instances, the gap became so wide that the people effectively reached a threshold that drove them to take

radical action to narrow or close that gap. “Although they shared a common call for personal dignity and responsive government, the revolutions...reflected divergent economic grievances and social dynamics” (Anderson, 2011, p. 2). The fruit of the ideologies and worldviews they shared resulted in a panoply of ungoverned spaces, economic hardships, and negative views of the United States (Clapper, 2013) and other western countries that continue to be projected on the international platform, frequently resulting in global incidents of violent extremism (Bolden, 2017). These events have often stemmed from or been inspired by non-state actors with origins in several key Middle Eastern states. Indicators of instability continue to play out in neighboring countries. The study revealed that fluid intelligence in adaptive regimes promotes stability in gulf monarchies. It also suggested that fluid intelligence in non-adaptive regimes can result in higher levels of group grievance that lead to instability and discontent.

The analysis of data from diverse sources revealed that all monarchies in the sample scored high in state legitimacy (were perceived by their populations as illegitimate) and high levels of human rights abuse, but exhibited variable levels of group grievance (the more adaptive the regime, the lower the group grievance). These results contradict the earlier assumptions that stability was necessarily based on state legitimacy and social contracts that satisfy the basic needs of the populations they serve. This research study also revealed that most states in the Gulf have high fluid intelligence capacities.

Saudi Arabia and Bahrain were the most non-adaptive regimes, whereas Qatar and the UAE were the most adaptive. Bahrain and the UAE had the same

levels of fluid intelligence; however, Bahrain had high group grievance whereas the UAE had the lowest of all gulf monarchies. Bahrain had exceptionally high levels of social capital in the years preceding the Arab Spring, but dropped dramatically from 2011 to 2016. This could indicate subjugation tactics that have undermined trust within the population; increasing the discontent of disempowered groups in Bahrain, leaving them vulnerable to explore other dysfunctional ways to meet unmet needs. Governance is a key factor in maintaining a healthy balance between the government and the governed in ways that meet quality of life expectations and progressive reform.

Governance is influenced by a number of factors, but most fundamentally, the nature and approach of governance play a part in power structures that determine how decisions are made, how laws and legislation are created, and the degree of influence a population has on the overall process. It also determines how laws and legislation are implemented to keep the peace, promote economic growth, and meet the needs of the governed. The first phase of my research sought to examine the influence of monarchy type on fluid intelligence and adaptive governance in the Middle East. After having conducted the analysis, I did not notice any consistencies by type (e.g., absolute, constitutional, or federation), but I did notice that all six monarchies scored high in human rights abuses and frailty in state legitimacy.

Although all monarchies scored high in human rights abuses and state legitimacy, these indicators were not sufficient to address questions of adaptive governance proper, as these are systemic and chronic cultural and institutional

areas of vulnerability that would not necessarily reveal any distinctions in impact within and between capacities. However, the fact that monarchies are autocratic by nature can shed light on limitations in the area of human rights, state legitimacy, and government power monopolies within the system. It is also worth noting that human rights are broadly defined and each country exploits different aspects of human rights in different ways to its own advantage. Some exploitations are more heinous than others.

Human rights abuses that gradually worsen over time combined with group grievance decreasing over time can suggest that strategies of subjugation work to maintain stability for the majority of the population, but what about the outliers? What about the growing number of emergent phenomena manifested in the form of extremist group incidents and intermittent, but more frequent, occurrences of protests that have affected both the Middle Eastern region and international community?

Legitimacy is a criterion of a population's confidence in the government. It indicates degrees of corruption, transparency, and the quality of electoral systems evidenced by demonstrations, protests, or extremist activity in the region (Fragile States Index Methodology, 2018). State legitimacy can be abused easily where there are power monopolies. Human rights and the problems that result from poor state legitimacy often go hand in hand. For instance, low levels of group grievance and high levels of human rights abuses may indicate a level of tolerance or conditioned fear response to non-adaptive strategies, which can result in emergent instances of extremist activity, sleeping giants on the brink, or

healthy adaptive strategies from the civilian population that lead to incremental reform. It would depend on the nature of the human rights offense by the non-adaptive state and the population's ability to adapt (measured by levels of fluid intelligence) to maintain threshold quality of life expectations. A further study into human rights proper, the nature and degree of human rights abuse in each respective state as it pertains to monarchies, adaptive governance and the population-at-large, and the quality of monarchical governance (e.g., transparency or corruption) would provide more context to the overall body of research.

In the second phase of the study, I examined unique combinations between factors between 2010 and 2016 and grouped them by monarchy using a unique Periploko method designed to measure combinations and interactions between data. Saudi Arabia and Bahrain shared similar combinations in the areas of group grievance, human rights abuse, and state legitimacy fragility. They also led in secondary and tertiary enrollment (e.g., crystallized intelligence or knowledge). This might indicate that crystallized intelligence does not necessarily play a dominant role in maintaining stability, as both countries have experienced more population unrest and extremist activity than any of the other regimes.

Bahrain, Qatar, and the UAE had the highest levels of internet (scale) and virtual social network usage (learning) among all monarchies. The combination of knowledge and learning in Bahrain could be significant in that the population could have higher quality of life expectations that can lead to greater volatility

within the state. Knowledge alone could be dormant, but the interaction between knowledge and learning, an emergent outcome that fuels higher levels of grievance and instability. Qatar and the UAE have maintained the lowest group grievance levels in the Gulf.

In 2016, Qatar and the UAE had the highest levels of adaptive capacity (lowest in state fragility) and learning. Qatar and Bahrain shared had the same scores in learning, scale, and collaboration. Learning, scale, and collaboration are indicative of high levels of fluid intelligence, and moderate to high scores in collaboration could indicate a greater level of community engagement that could positively affect reform or protest.

Next, I identified the two most adaptive and non-adaptive monarchies of the six nations analyzed using the Periploko method. Saudi Arabia and Bahrain were the most non-adaptive, whereas Qatar and the UAE were the most adaptive. Qatar, the UAE, and Bahrain scored high in fluid intelligence, whereas Saudi Arabia had above average levels. This trend revealed that both non-adaptive and adaptive monarchies had equal levels of above average fluid intelligence based on virtual social network engagement and internet usage. At this point, it was still not clear to how or to what degree fluid intelligence impacted stability, or if this ability had any influence at all.

After that, I added the mediator of interest groups from the operational concept of political and social integration to measure its impact on fluid intelligence. Bahrain and Kuwait had the highest levels of interest group engagement throughout the study. Both Bahrain and the UAE had high levels of

social capital, but the UAE increased between 2010 and 2016, whereas Bahrain's decreased dramatically. Kuwait experienced instability in 2014 as evidenced in its group grievance scores, but levels of social capital were moderate throughout the study.

High levels of interest group and social capital can indicate populations that are more collaborative with governing systems. This conclusion would depend on the type of interest group (economic or non-economic) and the influence of social capital on the decision-making process. In the case of the UAE, social capital and adaptive governance would reinforce one another. However, in Bahrain, non-adaptive governance combined with high social capital and interest group engagement would decrease population trust. The extent of that decrease would depend on the nature of the governance (e.g., type of human rights abuses) instigating grievance.

High interest group engagement and low social capital could reveal the dominant influence of economic interest groups, as social capital represents the interests of the greater population. Low interest group and high social capital, as is the case with the UAE, could indicate community engagement with other mechanisms within the government that promote the population's greater interests. It could also reveal the presence of non-economic interest groups, which are not as ubiquitous as the economic networks. Further research that analyzed the aggregate components of interest groups would be necessary to substantiate those distinctions. It is important to note that the interest group component was analyzed in isolation during the last phase of research, but



showed a significant characteristic (high levels of interest group engagement in Kuwait and Bahrain) that may be the result of the parliamentary design of constitutional monarchies (which was not apparent in the first phase of research, as interest groups were analyzed last).

In the final phase, I chose group grievance as an official measure of stability in the Middle East based on my process tracing analysis and Periploko method. I also chose state fragility as the independent variable, virtual social network engagement as a measure of learning, and social capital as a measure of collaboration. Bahrain, a non-adaptive monarchy, scored high in both learning and collaboration in 2010, but experienced a dramatic drop in collaboration over the course of the study (about 50%). The UAE, an adaptive monarchy, scored high in collaboration, scope and learning.

Bahrain experienced massive protests during the Arab Spring in 2011, as group grievance and human rights abuses have been on the rise. The UAE, although also moderately high in the area of human rights abuses, earned the second lowest group grievance scores (next only to Oman) and has moved forward with progressive reform in the region, with no incidents of population unrest or international extremist activities between 2010 and 2016, indicating stability within the regime.

The research study revealed a strong correlation between adaptive regimes with fluid populations and stability. States high in fluid intelligence in adaptive regimes have lower group grievance, but states high in fluid intelligence in non-adaptive regimes have higher group grievance. Social capital or

collaboration reveals an effective use of fluidity within groups as opposed to individuals. A more thorough analysis of the impact of social capital on fluid intelligence through social network analysis, surveys of the population, policy and consensus mechanisms, and the nature of human rights abuses would make the support of causality between adaptive governance, fluid intelligence, and stability more comprehensive.

### Outliers and Other Inconsistencies

Kuwait, Qatar, and the UAE revealed some outliers and inconsistencies throughout the study. Despite gradual improvement, in 2014 Kuwait experienced a drastic worsening of state legitimacy that has never drastically improved. This spike occurred during the Kuwait protests and at the dawn of the Arab Spring revolts. However, despite the population's disappointment with the governing system then and now, the population has still managed to contain its discontent. In 2010, Kuwait had one of the worst levels of overall state fragility, but drastically improved in 2018, with one of the highest levels of social capital in 2016. The state has also maintained a majority of below average group grievance scores between 2007 and 2017. Qatar has been one of the most adaptive regimes between 2010 and 2016, with the one of the highest levels of social capital, scope, learning, and knowledge of all the gulf monarchies.

However, in 2014, the monarchy experienced a drastic worsening of overall state fragility. This outlier was most likely due to the external interventions that took place among Saudi Arabia, Bahrain, and the UAE against Qatar based on allegations of supporting terrorist organizations and perceived common

adversaries in the Middle East. This occurred again in 2017, but Qatar still managed to keep state fragility at an all-time low. However, the effects of the intervention doubled their negative impact in 2018. The 2014 and 2018 measures of state fragility and some of the other consequences Qatar has experienced due to external intervention highlights its power over adaptive governance. The powerful influence of external intervention on adaptive and non-adaptive regimes should be included in future studies to add substantially to this body of research (see Figure 21).

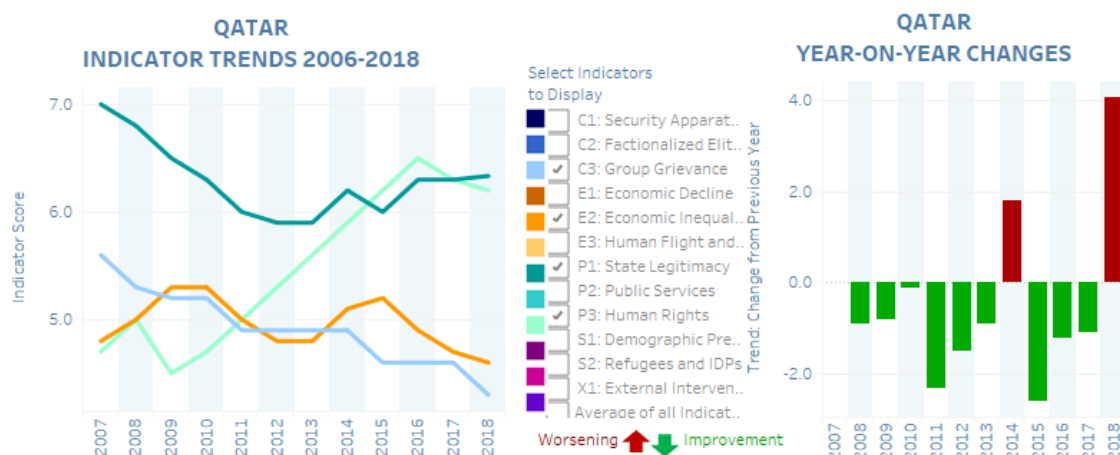
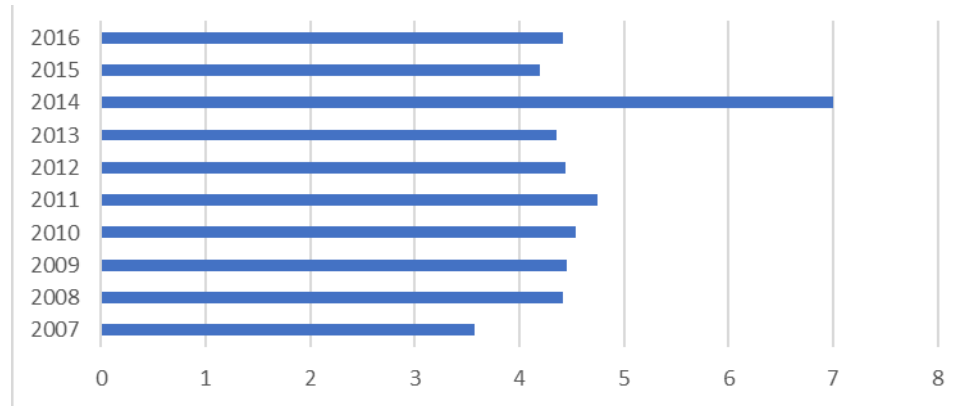


Figure 21. State fragility in Qatar, 2010-2017. Source: Fragile States Index.

The UAE experienced a huge spike in secondary and tertiary enrollments in 2014 (see Figure 22). This anomaly could be attributed to a sudden increase in enrollment following a launch of the United Nations Educational, Scientific and Cultural Organization (UNESCO) initiative Education for All or an increased

enrollment of expatriates and nationals in K-12 and tertiary education due to a rise in demand for quality education and educators in the UAE from expatriates.



*Figure 22.* Quantity of education in the United Arab Emirates, 2007-2016 (on a scale of 1-10). Source: World Economic Forum, Global Competitive Index

### Limitations

I encountered several limitations throughout the course of the study.

These included Periploko scale disparities, inconsistent data availability and time ranges across monarchies, dataset bias, inconsistent disaggregate data availability (e.g., interest groups did not have economic and non-economic data type data), and representative demographic data within the FSI.

The score differences between states in a certain Periploko category (e.g., score 1 or score 2 could have a difference of 20% between them, which is significant) were extreme. The scores were based on relative levels between monarchies and the Periploko scale used was very narrow (1-3). Exact scores were illustrated in previous tables and graphs throughout the study. However, widening the scale to 1.0-5.0 would yield more granular results.

First, data for the gulf monarchy regimes were variable. Some datasets representing certain categories started or ended earlier than others (e.g., Internet Usage for gulf monarchies started in 2000 whereas the fragile state index started in 2007). To adjust for missing data and incongruent start/end times, I chose a range that included data in each category for all gulf monarchies (2010-2016). Although I took note of patterns in trends in the data across 7 years and consideration of patterns before 2010 based on data availability, the Periploko typology was based on a comparative analysis of trends across categories 1 year before the Arab Spring (2011) and 5 years after. This context provided insight into indicators before the protests and how they evolved.

It is also important to note that each dataset used to develop the master dataset was created from a certain perspective. The Fund for Peace developed the Fragile Index. The World Economic Forum calculated the ICT usage and Higher Education enrollment scores to compile a global competitiveness report. ITU is a UN body that works very closely with the private sector to evaluate and sell products related to internet and ICT usage to the public and private sector. The BTI was the fruit of a German-based project with the goal of assessing democratic status and management in a selected group of countries internationally.

All datasets will necessary be biased to accommodate the frameworks from which they were developed. For example, the Global Competitiveness Index “defines competitiveness as the set of institutions, polices and factors that determine the level of productivity in the country” (Cann, 2016, para. 1). This

framework associated with state productivity is necessarily reflected in the variables, indicators, and criteria. In other words, the meaning of a specific concept or variable in social network analysis can mean something completely different in natural resource management, even though the same word is used.

For instance, BTI's (2017) definition of social capital was more reflective of decentralized and autonomous social groups sharing common cultural, economic, and political preferences. This meaning is the exact opposite of social capital proper in social network analysis (SNA), as social affiliated groups are highly cohesive and groups high in social capital in an SNA context have numerous diverse ties to individuals who are not necessarily a part of their inner circle. Even though these meanings contradict each other, analyzing the nature of social networks in form and function is essential to understanding how groups decentralize; the role of social capital proper in advancing the interests of these decentralized, autonomous groups; how these identity networks influence fluid intelligence and the implementation of group interests; and what these networks can reveal about group grievance and healthy, thriving communities from the bottom up.

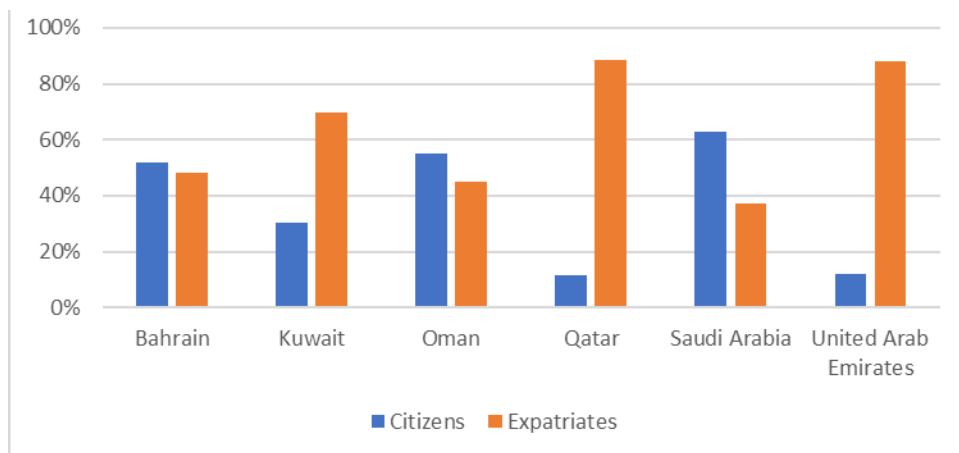
BTI also has a conflict intensity indicator that is used in the same way as group grievance in FSI, but the grievance described is based on social, ethnic, or religious differences as opposed to differences between the population and the state. These distinctions were made in the methods section, but in order for the diverse datasets to be integrated in such a way that served the needs of the research study, it was necessary for me to disaggregate the data into various

levels and pick those aspects of the dataset most relevant to my sample.

Consequently, I needed to create my own dataset using categories, variables, indicators, and criteria from the five datasets to answer the research question.

It is also important to mention that only three out of five of the categories had representative dimensions (more granular level data). Sometimes disaggregation is not needed when variables are sufficiently representative in the context of the research study and dataset. However, in the case that a piece of data needs to be disaggregated, it would be wise to find another dataset that includes data more congruent with the sample and research question.

Demographic considerations were also a substantial limitation, as most monarchies have very large expatriate populations (see Figure 23). What role (if any) do expatriates have in governance? Qatar has a citizen population of 14%; the rest are expatriates with various degrees of responsibility and privilege within the state. The composition of the expatriate population must also be analyzed to obtain a realistic perspective of inter population and state/population's impact on governance.



*Figure 23. State comparison of citizens and expats in gulf monarchies, 2017.*

Finally, usage does not indicate utility. Internet or ICT usage does not indicate whether individuals are engaging them in ways that effectively cultivate fluid intelligence (e.g., watching movies or Skyping friends as opposed to conducting research or engaging with groups about sustainable development).

### Implications

Learning and knowledge are intangible, yet have an increasing influence on how global populations perceive themselves and others. ICT and OSINT are changing the way people adapt to uncertain conditions, solve problems, and innovate for the greater good. These evolving paradigms are changing the calculus of how adaptive monarchies approach social, cultural, institutional, economic, and international challenges to sovereignty, leadership and progressive reform. Based on this research study, the UAE and Qatar were the most adaptive monarchies across capacities over the length of the study. They both revealed record levels of ICT usage and social capital in 2016: the strongest indicator of fluid intelligence. Bahrain was one of the most non-adaptive regimes, almost equally high in fluid intelligence, but highest in group grievance. Saudi Arabia was second in non-adaptivity with a high group grievance, but made the most substantial improvements over the course of the study in adaptivity (state fragility) from 2010-2016.

Fluid intelligence is an ability that gives individuals and groups the capacity to think critically; tapping into their knowledge, skills, and abilities to make productive and meaningful contributions to their respective states and the



international community. It can also be used to destroy. Monarchical government strategies that emphasize entrepreneurship, sustainable development, community service, and population consensus could lead the way in innovation, healthy civil engagement, and economic growth in the Middle East. These activities increase social capital and rely on the contribution of the masses working together with the leadership, to prosper.

### Policy Recommendations

All six of the gulf monarchies have created initiatives to address the expectation gap through community initiatives for women and youth, anti-radicalism campaigns, employment opportunities, and infrastructure development. Some examples include the State of Qatar's Global Community Engagement and Resilience Fund that promotes "social cohesion, community agency, equal access to opportunities and a sense of purpose" (G-CERF Fact Sheet, 2017, para. 2). Petroleum Development Oman (PDO) has recently agreed to support 18 initiatives in the Sultanate of Oman that promote "sustainable programs, community infrastructure, employability training, training and animal welfare" (Ona, 2018, para. 2). Lastly, the Kingdom of Saudi Arabia rolled out their Vision 2030, led by the Council of Economic and Development Affairs, to address social, cultural, economic, and governance needs by creating more leadership opportunities for women, diversifying the economy, and cultivating a community of international acceptance while maintaining time honored religious and cultural traditions (Vision 2030, 2018). The UAE has integrated progressive reform as a

part of their regular policy for many years and continues to implement changes that strengthen their communities.

There are several policy recommendations that I would propose that would complement already existing initiatives by promoting individual empowerment, adaptive governance, and sustainable communities that work symbiotically to promote abundance, security, and the longevity of monarchical regimes in the Middle East. These include:

- the creation of democratic and human rights standards for monarchies that maintain order without compromising human dignity,
- the creation of comprehensive models illustrating adaptive governance and non-adaptive governance based on a comprehensive research and development effort,
- the creation of an independent research and development ministry made up of model citizens and members of the royal family to yearly assess the implementation of adaptive governance goals and objectives,
- a comprehensive youth initiative that encourages innovative community development projects that provide a modest income and opportunities to participate in the decision-making process, and
- an expatriate ministry designed to assess the needs of migrants and other non-permanent residents while integrating them into the sustainable development of the community at large.

## Advancing the Research

More comprehensive and granular research in human rights, social networks, power structures, *social capital* as defined by the BTI, and sustainable community development effectively support Middle Eastern policy and shape strategic governance. Other areas of specificity that would add to the research include a study of the impact of demography, including the compositional make-up (e.g., faction analysis, religion, culture, ethnicity, gender and worldviews) and how these effect critical thinking, innovation, and governmental responsiveness. External intervention is another area that would be beneficial to explore, as international state power politics (neighboring adversarial states and proxy conflicts) often change the calculus and direction of regional priorities at the mercy of national interests.

In addition, the development of current tools that assess civil engagement and environmental conditions that constrain progress in sustainable development of healthy, thriving communities (e.g., Civicus Enabling Environment Index [EEI] and the Civicus Civil Society Index) would be invaluable to monitor and evaluate the impact of governments and the governed throughout the world, resulting in the implementation of more effective and robust programs that help these governments and communities thrive.

Another powerful research study would include an analysis of capacities to build sustainable communities and the potential for long-term implementation based on social capital and institutional structures that promote consensus, contribution, and individual empowerment in monarchical regimes. Other research questions to be considered include examining how monarchical leaders

monitor and evaluate the needs of the governed, what systems they use to address those needs, and how they course correct to improve both process and outcome. One can also find out if group grievance necessarily represents individual grievance. In complex systems, individual grievances can be indicative of low probability incidents with high impact: how could those be factored in the equation?

Finally, the Periploko Method could be developed into a model and process that includes a more sophisticated typology in the form of a complex matrix driven by machine learning (deep neural networks), SNA and structural equation modeling. This matrix can be designed to identify causal interactions and emergent outcomes by scanning diverse datasets as well as interactions between nesting levels (international, national and communal) in diverse conceptual categories. This matrix (or collection of matrices) would support research and development efforts that inform security, adaptive governance and sustainable development in volatile regions around the world.

### A Paradigm Shift

A paradigm shift in *citizen value* within monarchical regimes should take place, since populations are becoming more empowered as cognitive capacities adapt to accommodate the highly complex cultural, social, and technological landscape. Literally and figuratively, each individual is tremendously valuable in terms of what he or she can contribute to the good of the regime, his or her society, and the international community. Truly recognizing citizen value and how to utilize it effectively to get the highest return on investment in such a way that

maximizes quality of life quotients, resources, regional, and international security and the longevity of the regime is the challenge that lays ahead of the gulf monarchies. Adaptive regimes in the Middle East have recognized the power of fluid intelligence supported by citizen social capital, technological advancement, consensus, and adaptive leadership in the 21<sup>st</sup> century. Strategies of intimidation are short-term and will only minimize the impact of fluid populations, fresh with new ideas and desperate for change. The alternative is disempowered civilian communities, more frequent emergent acts of violent extremist activity, and stagnant economies with little hope of progress.

Recent efforts at reform within the gulf monarchies have been made in Saudi Arabia, previously categorized as one of the most non-adaptive regimes over the course of this study in the Middle East, to address inequality and civil oppression by recently appointed Crown Prince Mohammad Bin Salman, which included allowing women to drive, giving females more access to education and business opportunities, and cracking down on corruption within its institutions. This populous and influential state is leading the way to instigate incremental change within a very diverse, ultra-conservative, and conflict prone region. With the evolution of cognitive adaptivity, the return on investment in each individual is tremendous for those who are willing and able to effectively cultivate and channel it toward the greater good. For better or for worse, ICT and OSINT have and will continue to contribute to individual empowerment, the advancement of the collective interests of civil society, and adaptive collaborative governments in the Middle East and beyond.



## CHAPTER SIX

### CONCLUSION

Monarchies are, by nature, autocratic. If these regimes are to maintain their integrity in form and function, it has yet to be determined whether they will remain strictly autocratic, contributing to instability within the region and international platform, or autocratic with dominant democratic features that contribute to sustainable communities, democracy proper, and international security. Gulf monarchies driven by constitutional constructs are designed to give people a voice, but fear-based non-adaptive leadership renders them ineffective. True adaptive governing systems are made up of leaders who use adaptive leadership functioning within a system that gives voice to the governed in ways that support their quality of life expectations and cognitive adaptation constructs.

Paradigms play an integral part in determining how individuals and groups see and respond to people, their environments, and governing systems. Middle Eastern monarchies differ from republics in myriad ways. Religious, cultural, tribal, and ethnic influences are woven throughout Arabic monarchical regimes. Democratic systems are not one size fits all. Individuals with a capacity to come up with novel ideas and adapt in diverse environments can be valuable partners in building innovative and sustainable communities that integrate democratic concepts in the context of a monarchy to which they can be proud to belong. The idea of a monarchy, and an absolute monarchy to be more specific, does not have to be intimidating in the 21<sup>st</sup> century. National pride, loyalty, and contribution

are the products of individual empowerment, critical thinking, a sense of personal ownership, and the freedom to belong. Conscious creation in a collaborative effort among citizens, monarchical governing officials, and the private sector can contribute to climates of growth, responsibility, hope, and transformation in service of adaptive monarchical governing systems in the Middle East. It is possible to provide citizens with democratic mechanisms to institutionalize consensus, promote civil engagement, and contribute to international security while keeping the form and function of the monarchy intact. Recognizing and cultivating citizen value will be the first step in transforming strategies of intimidation and fear to those of meaningful and constructive sustainable development that promotes long-term stability and thriving communities in Middle Eastern gulf monarchies.



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