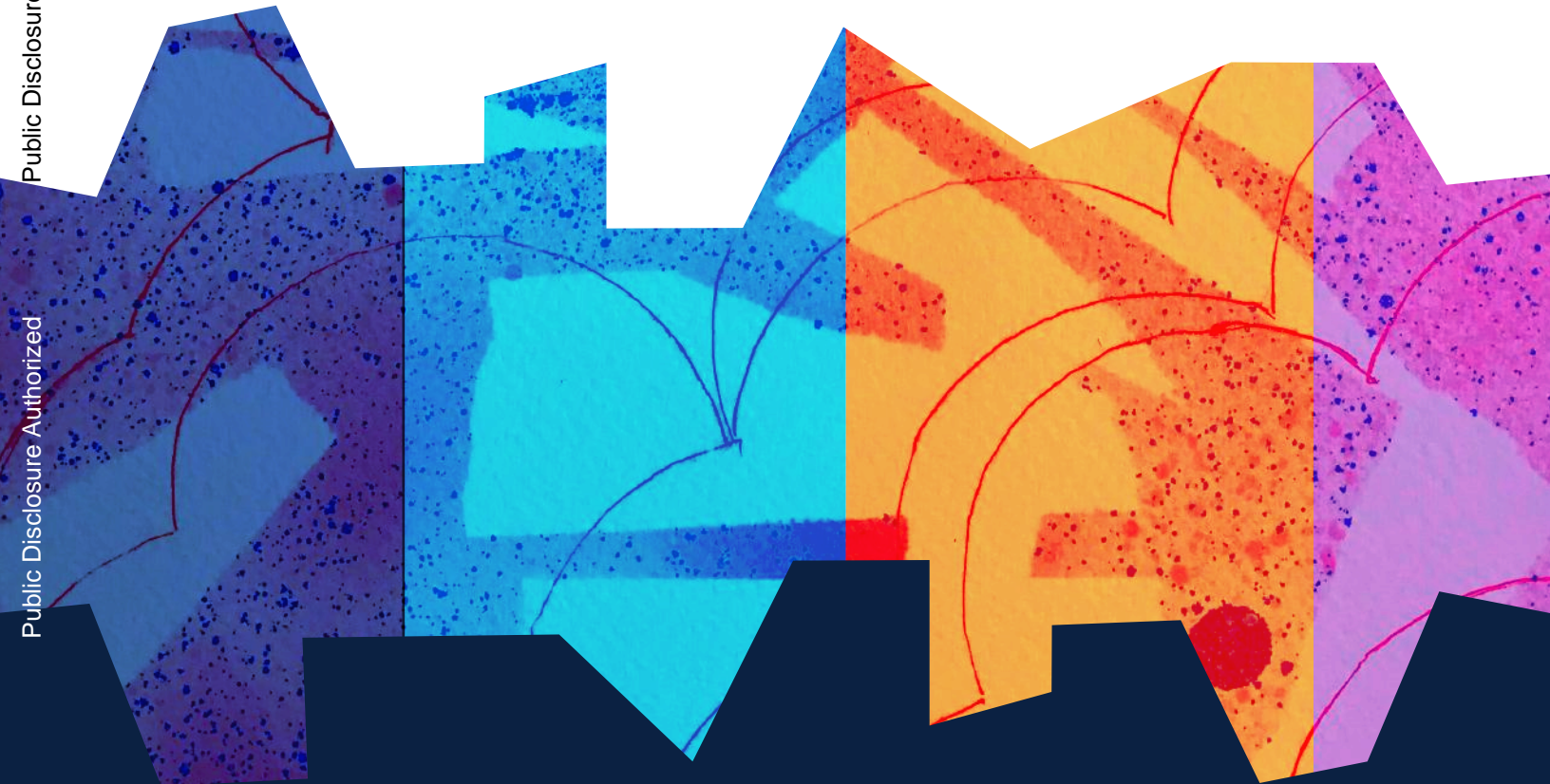




Digital Hotspots:

Developing Digital Economies
in a Context of **Fragility, Conflict**
and **Violence**



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Digital Hotspots: Developing Digital Economies in a Context of **Fragility, Conflict and Violence**

Table Of Contents

Foreword	v
Acknowledgments	vi
Summary	vii
List of acronyms and abbreviations	xi
1. KEEPING THE TELECOMMUNICATIONS SECTOR AFLOAT IN FCV ECONOMIES	1
1.1 Motivations and objectives	1
1.2 Methodology	3
1.3 Findings and results across the case study countries	10
1.4 Summary of the derivative data developed in the case studies	11
1.5 Implications for donor interventions in conflict countries	16
1.6 Lessons learned and how the Bank engaged in the digital sectors of Afghanistan, Somalia and South Sudan	16
The Bank's Digital Investment in FCV economies	18
2. THE REPUBLIC OF AFGHANISTAN	22
2.1 Afghan context	22
2.2 Assessment of internal Afghan telecom investment climate factors	28
2.3 Assessment of external Afghan telecom investment climate factors	32
2.4 Afghanistan's projected and actual teledensity evolution	335
2.5 Correlating Afghanistan's supply-side investment climate and teledensity	39
3. THE REPUBLIC OF IRAQ	40
3.1 Iraqi context	40
3.2 Assessment of internal Iraqi telecom investment climate factors	46
3.3 Assessment of external Iraqi telecom investment climate factors	49
3.4 Iraq's projected and actual teledensity evolution	51
3.5 Correlating Iraq's supply-side investment climate and teledensity	53
3.6 Iraq's post-conflict performance	53
4. THE STATE OF LIBYA	56
4.1 Libyan context	56
4.2 Assessment of internal Libyan telecom investment climate factors	63
4.3 Assessment of external Libyan telecom investment climate factors	67
4.4 Libya's projected and actual mobile teledensity evolution	70
4.5 Correlating Libya's supply-side investment climate and teledensity	72

5. FEDERAL REPUBLIC OF SOMALIA	73
5.1 Somali context	73
5.2 Assessment of internal Somali telecom investment climate factors	82
5.3 Assessment of external Somali telecom investment climate factors	85
5.4 Somalia’s projected and actual teledensity evolution	89
5.5 Correlating Somalia’s supply-side investment climate and teledensity	91
6. THE REPUBLIC OF SOUTH SUDAN	92
6.1 South Sudanese context	92
6.2 Assessment of internal South Sudanese telecom investment climate factors	93
6.3 Assessment of external South Sudanese telecom investment climate factors	100
6.4 South Sudan’s projected and actual teledensity evolution	103
6.5 Correlating South Sudan’s supply-side investment climate and teledensity	105
7. THE SYRIAN ARAB REPUBLIC	106
7.1 Syrian context	100
7.2 Assessment of internal Syrian telecom investment climate factors	110
7.3 Assessment of external Syrian telecom investment climate factors	113
7.4 Syria’s projected and actual teledensity evolution	115
7.5 Correlating Syria’s supply-side investment climate and teledensity	117
8. THE REPUBLIC OF YEMEN	118
8.1 Republic of Yemen context	118
8.2 Assessment of internal Republic of Yemen telecom investment climate factors	121
8.3 Assessment of external Republic of Yemen telecom investment climate factors	124
8.4 Republic of Yemen’s projected and actual teledensity evolution	126
8.5 Correlating Republic of Yemen’s supply-side investment climate and teledensity	129
ANNEX:	131
FY23 List of Fragile and Conflict-Afflicted Situations	



Foreword

One in ten of the world's population live in countries affected by Fragility, Conflict, and Violence (FCV), and their number is growing. Improving the lives of these people, including their experience of using digital technologies, lies at the heart of the World Bank's mission. In this report, we visit some of the world's "Digital Hotspots" to explore how to preserve and develop the telecommunications sector in FCV settings, as the prerequisite for using digital technologies.

This report was prepared during a time in the world's history when the COVID-19 pandemic overlapped with a war in Ukraine, rising costs of living, higher levels of unemployment in developing countries, climate-change-induced natural disasters and growing food insecurity. Countries already experiencing fragility have generally become more vulnerable during this period. Yet, the growth of the internet and of mobile communications has continued, almost unchecked. Since the start of COVID-19 in early 2020, there has been a remarkable rise in the use of international bandwidth as remote working and schooling have become more common. Equally, many people around the world have come to rely even more on mobile money and other digital financial services as a source of resilience. This has put pressure on service providers to constantly upgrade their services while remaining responsive to changes in consumer demand and new challenges.

The report draws upon analysis of seven case study countries over the period from 2000-2020 (with some variations among individual countries, to correspond to their FCV period). The main performance indicator considered is change in mobile teledensity over this period, and this is considered in relation to ten different factors, both internal and external to the country. Although all the countries struggled, the ICT sector in some countries proved more resilient than others -- notably Afghanistan, Iraq and Somalia -- and the report looks at the reasons behind this.

Looking ahead, there will be no shortage of FCV countries to work in, unfortunately, as well as fragile regions in otherwise stable countries. Increasingly, the Bank's lending operations have a digital flavor to them, either directly, as projects managed by the Digital Development Global Practice, or indirectly as digital activities embedded into the program of other sectors. We will use the learnings from this analysis to inform better operations in future, and we are happy to share this analysis with the countries themselves and other development partners.

Acknowledgments

This World Bank report was drafted under the leadership of Tim Kelly and was authored by a team comprising Anne-Elisabeth Costafrolaz, Eric Dunand, Fatimah Mutlaq H Alotaibi, Roku Fukui, and Naomi Halewood from the World Bank and Richard Keck and Andrew Johnson from the firm MacMillan Keck. The MacMillan Keck team was supported by Rory MacMillan, Jason Blechman, Scott Garvey and Lale Tuzmen. The report was carried out under the guidance of Isabel Neto (Practice Manager, Digital Development Global Practice in Eastern and Southern Africa) and Casey Torgusson (Program Manager, Digital Development). It was edited by Sandra Gain and typeset by Arnold Birungi and Martha Oringo. The report was written with information from country case studies as of 2021 that may not still be current at the time of publication.

At the decision meeting, held on October 26 2022, chaired by Isabel Neto, the report benefitted from comments from Bank peer reviewers Puteri Watson, Rajendra Singh, and Indira Konjhodzic and external peer reviewer David Souter (ICT Development Associates). Additional comments were received from Alain Aeschlimann.

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Authors Note:

In several cases in the report, country names are shortened, or abbreviated, for instance in tables or graphs. The official names of the case study countries are as follows:

The Islamic Republic of Afghanistan

The Republic of Iraq

The State of Libya

The Federal Republic of Somalia

The Republic of South Sudan

The Syrian Arab Republic

The Republic of Yemen

Photo Sources:

p6 and p12, Central Bank of Somalia, Tim Kelly, WBG p 16, Assessing war damage in Ethiopia, Prof Zelalem Assefa, EthERNET

Introduction

Currently, about 10 percent of the global population lives in economies affected by Fragility, Conflict, and Violence (FCV).¹ FCV situations threaten efforts to end poverty. As of July 2022, there were some 37 economies recognized on the harmonized World Bank Group list of economies characterized as having fragile or conflict-affected situations (FCS).² These economies accounted for around half of the world's poor, a figure expected to grow to two-thirds by 2030.³ Conflicts alone drive an estimated 80 percent of all of the humanitarian needs and reduce Gross Domestic Product (GDP) growth by two percentage points per year, on average⁴. The impact of FCV is particularly profound on the most vulnerable individuals and communities, whose livelihoods and economic opportunities are threatened. The global FCV landscape has also worsened significantly. Violent conflict has spiked dramatically since 2010, with more violent conflicts than at any time in the past 30 years, the largest forced displacement crisis since World War II, and high levels of interpersonal and gang violence. Climate change, rising inequality, demographic change, sovereign debt and other global trends render fragility increasingly more complex. There is thus an imperative to ensure that fragility, conflict, and violence are tackled, and FCV states are rebuilt. It is also crucial to ensure that benefits are shared, and that inequality is reduced.

As such, support to FCV countries is a major focus of the efforts of the World Bank (WB) to meet the twin goals of ending extreme poverty and boosting shared prosperity. In February 2020, the World Bank Group (WBG) launched the *Strategy for Fragility, Conflict and Violence 2020-2025 (FCV Strategy)*,⁵ which aims to enhance the WBG's effectiveness in supporting countries in addressing the drivers and impacts of FCV and strengthen their resilience, especially for their most vulnerable and marginalized populations. Four main areas of engagement have been identified: pivoting toward prevention, remaining engaged in situations of active conflict and crisis, helping countries in recovery escape the fragility trap, and mitigating the spillovers of FCV to support countries and the most vulnerable communities impacted by cross-border crises. The commitment to addressing the challenges of FCV is underpinned by a growing share of the financing for development allocated by the International Development Association (IDA). Already, under the 19th replenishment of IDA resources (IDA-19), some USD 18.7 billion (22.8 percent of the total) was earmarked for FCV economies, an increase from USD 7 billion under IDA-17. Under the IDA-20 replenishment, announced in December 2021 for fiscal years 2023 to 2025, the FCV envelope is expected to increase further, with a focus on Africa, particularly the Horn of Africa, the Sahel, and the Lake Chad region.

1 <https://www.worldbank.org/en/topic/fragilityconflictviolence/overview>. For the purpose of this study, the defining features of FCV are to be found in large-scale violence or conflict, and/or the weakening of core state functions, characterized by the inability to provide physical security, legitimate political institutions, sound economic management, and basic services delivery. The population estimate includes those living in regions (as well as whole countries) living in FCS.

2 See the Annex for the current (fiscal year 2023) list of FCS countries.

3 <https://documents1.worldbank.org/curated/en/844591582815510521/pdf/World-Bank-Group-Strategy-for-Fragility-Conflict-and-Violence-2020-2025.pdf>.

4 World Bank estimate, using the FY19 Harmonized List of Fragile Situations. This estimate illustrates what poverty would be like if historical growth rates (rates from 2006–15) continue onto 2030.

5 <https://documents1.worldbank.org/curated/en/844591582815510521/pdf/World-Bank-Group-Strategy-for-Fragility-Conflict-and-Violence-2020-2025.pdf>.

In recent years, it has become widely recognized that the adoption of digital technologies “can” make a significant contribution to poverty reduction and socio-economic development in countries and regions around the globe, both FCV and non-FCV alike, though it is far from sure that they “will”. Information and Communication Technologies (ICTs) have developed rapidly, becoming central to governments, businesses, and citizens, for the sharing of knowledge, and for interactions between individuals and within communities. The 2030 Agenda for Sustainable Development refers to ICTs as critical catalysts to all 17 Sustainable Development Goals (SDGs) established by the United Nations General Assembly in 2015 as they can help accelerate development progress⁶. The 2016 *World Development Report on Digital Dividends* also points out the tremendous opportunities in using digital technologies to improve service delivery, foster transparency and efficiency in public administration, promote innovation and empower citizens and entrepreneurs.

Yet many FCV-affected countries struggle with low and/or unreliable access to power, low access to internet, poor connectivity, both physical and digital, and high illiteracy. For many people, a mobile phone is the only digital device they have. This means that, in many FCV settings, particularly rural ones, efforts to leverage digital technologies to address FCV challenges or increase resilience will most likely need to be linked with mobile phones.

The WDR16 also points to the importance of strengthening the analog foundations of the digital economy, noting that if other systemic problems in economy and society are not addressed, then the benefits from digital technologies may be limited. In this context, analog foundations include ensuring that the economy benefits from good governance, and that any underlying problems of fraud and corruption are tackled. Use of digital technologies can contribute to this effort.

Recognizing the transformative role of digital technologies, the WBG and its development partners have launched ambitious corporate initiatives to help countries lay the foundations for a vibrant digital economy. This is reflected, for instance, in the Digital Economy for Africa (DE4A) initiative of the

WBG and the African Union (AU),⁷ which commits, *inter alia*, to ensuring that all of Africa’s citizens, firms, and governments are digitally enabled by 2030. The continent-wide initiative seeks to help countries in Africa turn the opportunities provided by digital technologies and the digital economy and unlock new pathways for more rapid and inclusive economic growth, innovation, job creation and access to affordable services. Similar interventions are being carried out in other regions, such as the MENAtech initiative in the Middle East and North Africa (MENA).

Several WBG programs that aim to capitalize on digital technologies and promote the development of inclusive digital economies are being designed or implemented in FCV countries. Recently announced digital development investments in FCV countries include Digital Ethiopia (USD 200 million, approved in 2021), Haiti Digital Acceleration (USD 60 million, approved in 2020), Smart Villages Niger (USD 100 million approved in 2021), Digital West Bank and Gaza (USD 20 million, also approved in 2021), with new projects under development in and the Horn of Africa region among others. The World Bank currently has over US\$1 billion committed in investment lending project in FCV countries. The rationale for such programs is that FCV environments should not be left behind in the digital age, in particular, where digital technology solutions can help deliver services to the most vulnerable. In such contexts, virtual connectivity and digital technologies can act as a catalyst for reducing extreme poverty and promoting inclusive growth, by: (i) growing and integrating economies, connecting at-risk populations, rebuilding social cohesion, and mitigating conflict; (ii) enhancing governments’ ability to deliver critical services; and (iii) boosting countries’ resilience to conflicts, public health, climate or economic shocks.



How can the digital economy develop and survive in an environment of fragility, conflict, and violence? Can it thrive and be harnessed as a driver of economic growth, job creation, improved public services, and resilience in such conditions?”

6 2030 Agenda for Sustainable Development, United Nations, 2015.

7 <https://www.worldbank.org/en/programs/all-africa-digital-transformation>.

The purpose of this report is therefore to provide an analytical backbone to underpin financial commitments to growing digital economies in FCV countries. The report seeks to identify the actions needed to stabilize and develop the telecommunications/ICT sector, which is an upstream requisite of a digital economy, in order to broaden economic growth and contribute to the World Bank’s historical commitment to reconstruction and development. The target audience for the report is the FCV countries themselves, especially government ministries and the private sector, which seek to build a digital economy. A secondary audience is the development community and practitioners, working in those countries, who seek to craft projects and programs aimed at promoting digital development.

The report presents case studies of countries that are recovering from different levels and stages of conflict, with a view towards identifying needed actions to keep ICT sectors afloat in FCV economies.⁸

The seven case study countries are all identified on the FCS list for FY23 and have been on the list for a while. The case studies are preceded by an analytical section that identifies similarities and patterns among the case study countries, together with scores on key indicators, which help to classify the countries and highlight differences. In addition to these countries, which are presented in detail, lessons drawn from other economies are reflected throughout the report.

8 This section was contributed by the consultant firm McMillan Keck under a contract commissioned for this study.



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Acronyms and Abbreviations

2G	Second-generation cellular digital mobile telecommunications network technology, which was designed initially to carry voice, and later low-speed data (text) and communications, and includes GSM technology	ATRA	Afghanistan Telecom Regulatory Authority
3G	Third-generation cellular digital mobile telecommunications network, which is designed to carry voice, low-speed data (text), and high-speed data (internet) at speeds ranging up to 384 kilobits/second, including Universal Mobile Telecommunications Service (UMTS) system, first offered in 2001, standardized by 3GPP and CDMA2000	AU	African Union
3.5G/3.75G	Enhanced third-generation cellular digital mobile telecommunications network technology, which is designed to carry voice, low-speed data (text), and high-speed data (internet) at speeds in excess of those of a standard 3G network but less than a 4G network (ranging from 2 to 21 megabits/second and later 84 megabits/second)	BOT	Build-operate-transfer
4G/LTE	Fourth-generation cellular digital mobile telecommunications network technology, also known as long-term evolution (LTE), which is designed to carry voice, low-speed data (text), and high-speed data (internet) at speeds ranging from 100 megabits/second to 1 gigabits/second. The term 4G+ refers to 4G, 5G and future mobile cellular technologies.	CDMA	Code division multiple access, a communications standard developed for 3G mobile networks
5G	Fifth-generation cellular digital mobile telecommunications network, which is designed to provide download speeds of between 50 megabits/second and 2 gigabits/second, depending on available bandwidth and software release – extending ultimately to 20 gigabits/second in later iterations	CMC	Communication and Media Commission, the sector regulator in Iraq which was established in 2004
ADB	Asian Development Bank	COVID-19	Coronavirus disease of 2019
ADSL	Asymmetric digital subscriber line	CPA	Coalition Provisional Authority of Iraq established by the United States and its allies pursuant to UN Security Council Resolution 1483 and the laws of war, which held executive, legislative, and judicial authority over the Iraqi government from April 21, 2003, until June 28, 2004
		DE4A	Digital Economy for Africa initiative (WBG and AU)
		DFG	<i>de facto government</i> (Republic of Yemen)
		EBITDA	earnings before interest, taxation, depreciation, and amortization
		EDGE	Enhanced Data for Global Evolution, a GSM standard
		EIU	Economist Intelligence Unit
		EVDO	Evolution-data optimized, a CDMA standard
		EU	European Union
		FCS	Fragile or conflict-affected situation
		FCV	Fragility, conflict, and violence
		GDP	Gross domestic product

GEMS	Geo-Enabling initiative for Monitoring and Supervision	IPF	Investment Project Finance
GNA	Government of National Accord (Libya)	IRG	Internationally-Recognized Government (Republic of Yemen)
GNC	General National Congress (Libya)	ISAF	International Security Assistance Force (Afghanistan)
GPTC	General Posts and Telecommunications Company (Libya)	ISG	Islamic State group
GSM	Global System for Mobile Communications	ISIL	Islamic State of Iraq and the Levant
GSMA	Global System for Mobile Communications Association	ISP	Internet service provider
HSDPA	High-speed downlink packet access	ITPC	Iraqi Telecommunications and Posts Company, the former incumbent and monopoly fixed line operator in Iraq
HTG	Hormuud – Telesom – Golis, operator grouping in Somalia	ITU	International Telecommunication Union
IBRD	International Bank for Reconstruction and Development	KM	Kilometer
ICSID	International Center for Settlement of Investment Disputes (part of the World Bank Group)	LAP	Libya African Portfolio
ICT	information and communications technology	LEO	Low Earth Orbit satellites
ICU	Islamic Customs Union (Somalia)	LPTIC	Libya Posts Telecommunications and Information Technology Company
IDA	International Development Association (part of the World Bank Group)	LTE	Long-Term Evolution
IDP	Internally displaced person	LTT	Libya Telecoms and Technology
IFC	International Finance Corporation (part of the World Bank Group)	MCIT	Ministry of Communications and Information Technology (Afghanistan)
IGC	Iraqi Governing Council, a 25-member governance body appointed by the Coalition Provisional Authority of Iraq in July 2003 to assume limited governing functions over Iraq initially and then full sovereignty over Iraq from June 28, 2004, until constitutional elections were held	MHz	Megahertz, or cycles per second, which is used as a measure of the radio frequency modulation
IMF	International Monetary Fund	MIGA	Multilateral Investment Guarantee Agency (part of the World Bank Group)
Internet	Global system of interconnected telecommunications networks that use Transmission Control Protocol/Internet Protocol to transmit and exchange data	MoU	Memorandum of understanding
		MTC	Ministry of Transportation and Communications (Iraq)
		MVNO	Mobile virtual network operator
		NATO	North Atlantic Treaty Organization
		NCA	National Communications Authority (Somalia)

NGO	Nongovernmental organization	SOE	State-owned enterprise
NOW	Network of the World (South Sudan)	SPLA-IO	Sudan People's Liberation Army-in-Opposition
NTC	National Telecommunication Corporation (Sudan)	TFG	Transitional Federal Government (Somalia)
NTC	National Transitional Council (Libya)	TNG	Transitional National Government (Somalia)
OCHA	United Nations Office for the Coordination of Humanitarian Affairs	UN	United Nations
ODI	Overseas Development Institute	UNCTAD	United Nations Conference on Trade and Development
PTC	Public Telecommunication Corporation (Republic of Yemen)	UNDP	United Nations Development Programme
RAS	Reimbursable Advisory Services	UNFPA	United Nations Population Fund
RoC	Rate of change	UNICEF	United Nations Children's Fund
SCALED-UP	Somalia Capacity Advancement, Livelihoods and Entrepreneurship, through Digital Uplift Program	USAID	United States Agency for International Development
SIGAR	Special Inspector General for Afghanistan Reconstruction	VSAT	very small aperture terminal, a two-way satellite Earth station with a relatively small dish antenna
SIM	Subscriber identity module, an integrated circuit chip installed inside a mobile phone or similar device, which is used to store the international mobile subscriber identity (IMSI) number and its related key used to identify and authenticate subscribers on a mobile network	WCDMA	Wideband Code Division Multiple Access
		WiMAX	Worldwide Interoperability for Microwave Access



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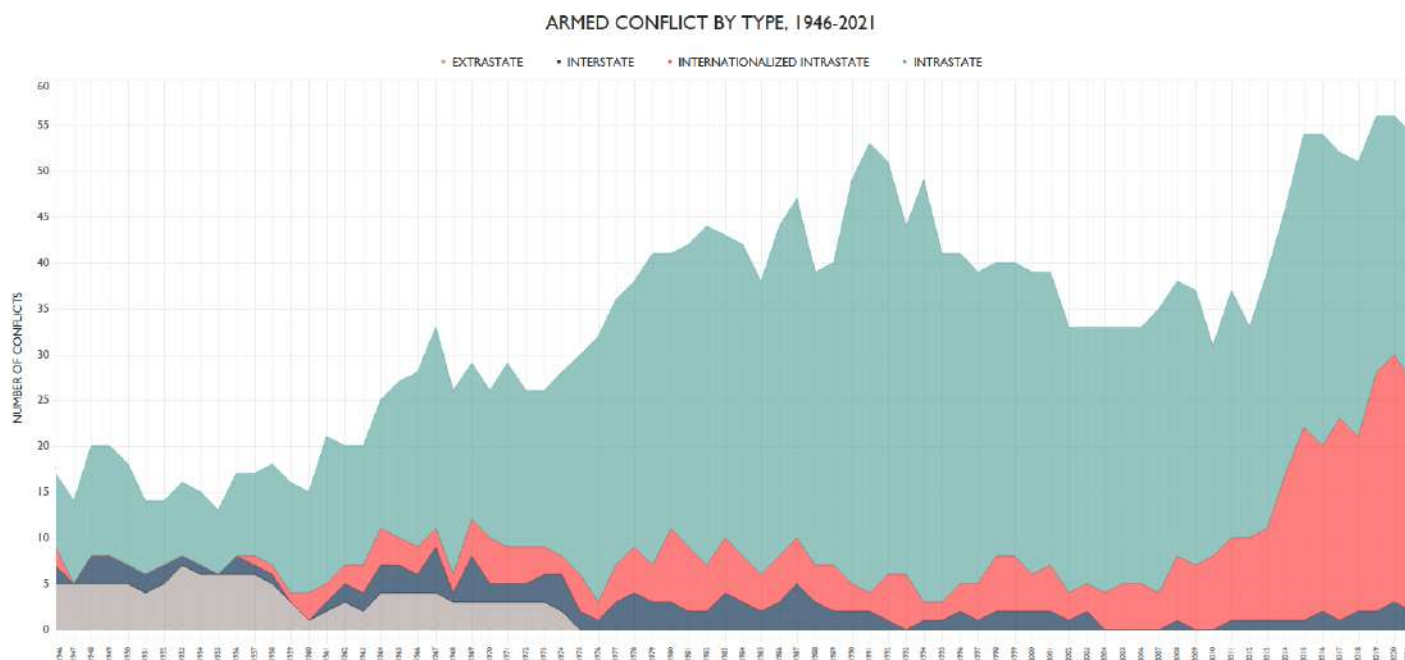
Keeping the telecommunications sector afloat in FCV economies

The section delves into the telecommunications sector of the seven FCV countries chosen as case studies and examines factors that encourage and discourage development, in the aim to identify what factors should be prioritized and supported by the international community in order to keep the sector afloat during conflict. Without this foundational infrastructure, the various benefits described in Part 1 would remain limited and the real impact unrealized. Communications services often come at a premium in FCV and low-income countries, yet experience shows that even in challenging situations, there is latent demand that is not being served. As such, there are a handful of mobile operators that appear to be willing to invest in FCV countries, where it is allowed, and as long as there are longer-term profits to be made. These operators take into account the additional costs in deploying and managing infrastructure securely into their operating expenses, despite the fact that, in Somalia for instance, these could increase costs by 30 percent or more.

1.1 Motivations and objectives

The World Bank commissioned this series of country case studies to develop an evidence-based foundation for how best to preserve and strengthen a country's telecom sector during times of conflict. Conflicts between states have become less common since World War II (until the recent invasion of Ukraine); nevertheless, intrastate conflicts (particularly those with foreign intervention) have become much more common in recent years. Figure 1 tracks the total number and mix of armed conflicts from 1946 through 2019.¹

Figure 1: Armed conflict, by type, 1946–2019



Source: <https://ucdp.uu.se/downloads/charts/>.

1 Pettersson, Therese and Magnus Öberg. 2020. "Organized Violence, 1989-2019," Journal of Peace Research 57, no. 4.

The WBG has conducted several non-sector-specific evaluations that offer practical lessons learned from its experience in FCV countries, with the key insight being to “do things differently” by adapting assistance programs and instruments to the low capacity of governments and the informality of the private sector.² An earlier World Bank publication, dating from 2014, looked at the experience of how information and communications technologies (ICTs) could assist countries in post-conflict reconstruction, with case studies of Afghanistan, Liberia, Rwanda, Timor-Leste, and Tunisia.³ But the World Bank has not heretofore carried out any rigorous studies of how best to address the telecom sector *during* conflict.

Research and data on the topic is extremely limited. A study comparing mobile penetration with a ranking of 141 low- and middle-income countries on their relative economic, political, security, and social welfare in a single year, 2008, did not find a statistically significant correlation between the security indicator and mobile phone penetration.⁴ Other studies have focused on the impact of mobile coverage or use on increasing or diminishing the likelihood of conflict, again with inconclusive results.⁵

The persistence of conflict, often impacting the countries that are most in need of international assistance, is a reality that must be addressed. Experience and observation indicate that conflict adversely impacts the mobile market in an affected country. Infrastructure and equipment are damaged or destroyed. Deployments of new facilities and repairs of damaged facilities are canceled or delayed due to the inability to reach sites, lack of trained personnel, difficulty to import spare parts, or safety concerns. Service is frequently interrupted and service quality declines.

Revenues decrease while costs increase, and investors are reticent to fund high-risk or uncertain ventures until there is more clarity and certainty. An example here would be how the conflict in the Tigray region of Ethiopia (designated as an FCV country on July 1, 2021) coincided with the government’s efforts toward partial privatization of the incumbent operator, EthioTel, and auction a license for a third operator. Both processes were postponed in early 2022, with investors citing the lack of a clear outcome from the conflict as one reason for their hesitation.⁶

Historically, the telecom sector has been one of the most profitable parts of low-income economies, and one of the few sectors able to generate significant amounts of foreign currency revenue, through the mechanism by which foreign telecom operators paid settlement fees to terminate international incoming calls. Several FCV countries have fallen into the trap of trying to monopolize this revenue, by inviting a gateway operator to handle international calls and by criminalizing operators that seek to bypass this bottleneck. In Burundi, for instance the government has imposed a single international gateway since 2016, operated by ITS.⁷ This is an inefficient form of taxation because ITS makes a guaranteed profit, even though traffic inevitably fell.⁸

The key objective of this study is to identify actions that authorities in FCV settings and/or the international community may take or refrain from taking during a period of conflict to mitigate these and other adverse impacts on telecom sector performance.

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- 2 See, for instance, Independent Evaluation Group. 2013. “The Private Sector in Fragile and Conflict-Affected States,” IEG Insights (World Bank Group, Washington, DC), https://ieg.worldbankgroup.org/sites/default/files/Data/reports/ieginights_psd.pdf. For the full 2013 report, see Independent Evaluation Group. 2013. Assistance to Low-Income Fragile and Conflict-Affected States: An Independent Evaluation (World Bank, Washington, DC), https://ieg.worldbankgroup.org/sites/default/files/Data/reports/chapters/fcs_eval.pdf. An evaluation of the International Finance Corporation’s experience in fragile and conflict-affected countries was also published; see Independent Evaluation Group. 2019. The International Finance Corporation’s Engagement in Fragile and Conflict-Affected Situations: Results and Lessons – Synthesis Report (World Bank, Washington, DC), https://ieg.worldbankgroup.org/sites/default/files/Data/reports/Synthesis_IFC_in_FCV.pdf.
 - 3 Kelly, Tim and David Souter. 2014. The Role of Information and Communication Technologies in Post-Conflict Reconstruction (World Bank, Washington, DC), <https://openknowledge.worldbank.org/handle/10986/16679?show=>. For the full country case studies, see <https://www.infodev.org/postconflict>.
 - 4 See Michael L. Best. 2011. “Mobile Phones in Conflict-Stressed Environments: Macro, Meso and Microanalysis,” in *Mobile Technologies for Conflict Management*, edited by Marta Poblet (Springer, New York), 15–17, <http://tid.gatech.edu/static/pdfs/mobilePhonesInConflict.pdf>. The Best study evaluates the correlation between economy, politics, social welfare, and security (based on a Brookings index of state weakness in the developing world) and mobile penetration. The Best study considers the impact of each variable on mobile penetration in a single year, 2008. It does not assess the impact of various combinations of these variables nor use time-series data to measure their impact on rates of penetration growth.
 - 5 See, for example, Catie Snow Bailard. 2015. “Ethnic Conflict Goes Mobile: Mobile Technology’s Effect on the Opportunities and Motivations for Violent Collective Action,” *Journal of Peace Research* 52, no. 3 (2015): 323–37, <https://journals.sagepub.com/doi/10.1177/0022343314556334>; Eran Fraenkel. 2014. A Critical Analysis of Digital Communications and Conflict Dynamics in Vulnerable Societies” (Internews, Arcata, CA, https://internews.org/wp-content/uploads/legacy/Internews_DigComminconflict_2014-11.pdf); Jan Pierskalla and Florian Hollenbach. 2013. “Technology and Collective Action: The Effect of Cell Phone Coverage on Political Violence in Africa,” *American Political Science Review* 107, no. 2 (2013): 207–24, <https://www.jstor.org/stable/43654011>.
 - 6 <https://www.reuters.com/world/africa/ethiopia-says-has-postponed-sale-stake-ethio-telecom-2022-03-19/>.
 - 7 ITS is a French/HK company, registered in Turkiye, that uses military intimidation to collect dues. The gateway is a virtual switch through which all mobile operators (EcoNet Leo, Lumitel and SMART) are obliged to pass their international traffic (incoming and outgoing). ITS then levies a fee of 46.5 US cents per minute. Incoming international traffic in January 2016 stood at 2.39 million minutes, but by March 2017 it had fallen to just 0.96 million minutes – a fall of 60 per cent in just 15 months -- and the decline continued. Later, a similar monopoly gateway was awarded to BBS for data services. BBS began as a public private partnership, with private sector owners alongside the Government, but later was fully nationalized.
 - 8 World Bank. 2017. Burundi ICT Sector Evaluation

The study adopts a “natural experiment” approach to the analysis of causal relationships.⁹ It focuses on gaining insights that may inform the current and future actions of the World Bank, other international organizations, and state actors with a view to mitigating the adverse impact of conflict on the telecom sector of client countries. This focus led to formulating and testing a key hypothesis through the comparative study of seven countries in conflict over a 21-year period. Namely, the following hypothesis was tested:



The degree of adverse impact on mobile teledensity¹⁰ during conflict is significantly driven by internal and external barriers to mobile telecom investment in the affected country.”

If the hypothesis is valid, then the findings from this study can inform potential interventions by international organizations during times of conflict.

Studying the impact of conflict on the performance of the telecom sector offers many potential insights beyond the scope of this study. For example, it would be informative to study the relationship between a conflict’s impact on the macro-economy and its derivative impacts on the telecom sector. It would also be useful to consider how variations in the type and duration of conflict have different impacts on the telecom sector. Yet another topic would be the impact of telecommunications on causing, avoiding, or resolving conflict. Such questions are potentially useful topics for future research, but they are beyond the scope of the current exercise of identifying and evaluating potential practical intra-conflict interventions.

1.2 Methodology

The study evaluates the impact of barriers to investment in the telecom sector on the performance of the sector in seven current or former FCV countries in Africa, the Middle East, and South Asia: Afghanistan, Iraq, Libya, Somalia, South Sudan, the Syrian Arab Republic, and the Republic of Yemen.¹¹ Each country faces different circumstances, and the types of FCV they have endured have had different causes, durations, starting dates, and ending dates. Two of the countries are landlocked (Afghanistan and South Sudan) while the others all have a coastline, which is important for provision of international connectivity via submarine cables. Five of the conflicts had intrastate origins, while two had interstate origins, but most attracted some level of outside intervention (and in some cases, the internal conflict became a proxy war between or among foreign powers).

In assessing cause and effect, the study focuses on retail mobile markets. The intention is to assess the impact of conflict and investment barriers on mainstream investment flows. Mobile services have been by far the predominant form of end-user connectivity growth in low- and middle-income countries over the past two decades and this trend is continuing.¹² By 2021, some 94 percent of the world’s population had mobile broadband coverage,¹³ and, by 2020, mobile services represented 87 percent of all broadband connections in low- and middle-income countries.¹⁴ Due to the more scalable cost structure of wireless networks compared with wired networks,¹⁵ and the ability of mobile coverage to reach deep into the population, efforts to introduce competition and attract private investment have been consistently more successful in mobile markets in developing countries than efforts to introduce competition and attract private investment in fixed broadband markets.¹⁶ For example, by 2010, 92 percent of countries

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- 9 See, for example, Bruce D. Meyer. 1995. “Natural and Quasi-Experiments in Economics,” *Journal of Business and Economic Statistics* 13, no. 2 (1995): 151–61, https://www.jstor.org/stable/1392369?seq=1#page_scan_tab_contents or https://www.nber.org/system/files/working_papers/w0170/w0170.pdf. The 2021 Nobel Prize in Economic Sciences was awarded to three economists based on their natural experiments approach to cause and effect in the social sciences. See The Royal Swedish Academy of Sciences, “The Prize in Economic Sciences 2021,” Press Release (October 11, 2021), <https://www.nobelprize.org/prizes/economic-sciences/2021/press-release/>.
- 10 Mobile teledensity refers to the number of mobile subscribers in a country or region per 100 inhabitants. It may be expressed as total subscribers (as measured by subscriber identity module (SIM) cards in service) or unique mobile subscribers, which include multiple ownership of SIM cards or machine usage of SIMs (for example, embedded in motor vehicles for automatically generated emergency calls).
- 11 The seven countries were selected because they had experienced a major conflict since the wide-scale introduction of mobile technology in developing countries and were considered geographically, demographically, and/or culturally relevant to the Republic of Yemen. Countries in East Asia, Europe, South America, and West Africa that may have suffered conflicts during the relevant time were not evaluated in this study.
- 12 See World Bank > World Development Indicators > Mobile cellular subscriptions (per 100 people) > Lower & middle income countries > Metadata, <https://databank.worldbank.org/reports.aspx?source=2&series=IT.CEL.SETS.P2&country=>.
- 13 See GSMA. 2021. *The State of Mobile Internet Connectivity 2021* (GSMA, London), 6, <https://www.gsma.com/r/wp-content/uploads/2021/09/The-State-of-Mobile-Internet-Connectivity-Report-2021.pdf>.
- 14 GSMA Intelligence. 2021. *The State of Mobile Internet Connectivity Report 2020* (GSMA, London), 5, <https://www.gsma.com/r/wp-content/uploads/2020/09/GSMA-State-of-Mobile-Internet-Connectivity-Report-2020.pdf>.
- 15 See, for example, OECD. 2015. Working Party on Communication Infrastructures and Services Policy, “The Development of Fixed Broadband Networks” (Organisation for Economic Co-operation and Development, Paris), 11, [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP\(2013\)8/FINAL&docLanguage=En](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP(2013)8/FINAL&docLanguage=En).
- 16 For example, in a 2011 study of privatizations in 108 countries from 1985 to 2007, the outcomes were strongly positive in Organisation for Economic Co-operation and Development countries and resource-scarce African coastal countries, weakly positive in countries in Latin America and the Caribbean, and strongly negative in resource-rich African countries and resource-scarce African landlocked countries. See F. Gasmi, A. Maingard, P. Noumba, and L. Recuero Vito, “Empirical Evidence on the Impact of Privatization of Fixed-Line Operators on Telecommunications Performance – Comparing OECD, Latin American, and African Countries” (2011), http://publications.ut-capitole.fr/18415/1/medias/doc/wp/2011/gasmi_privatization_final_2011.pdf.

had successfully introduced 3G mobile broadband competition.¹⁷ Conflict may have less impact on foreign direct investment in mobile markets than in other sectors.¹⁸ Nonetheless, mobile network coverage, the quality of service, and technology deployments are often adversely impacted by conflict and, according to the hypothesis to be tested in this study, FCV countries with a less hospitable investment climate are more severely impacted than those with a more hospitable investment climate.

The approach to testing the hypothesis and developing associated evidence-based knowledge, while perhaps appearing to be straightforward, was extremely complex. It involved collection, compilation, verification, and analyses of a vast database of events and measurements across multiple countries during conflicts that began in the past and some of which continue to the present. To ensure that it covers the entire conflict period in each country, the study considers data from 2000 (the year before the invasion of Afghanistan began) through 2020 (the last full year before the study was conducted). This entire 21-year period is considered for six of the seven countries, while consideration of South Sudan is limited to the period from 2011, when it first became a separate state from Sudan.

Two categories of “independent” variables (factors) impacting each country during a conflict period were assessed: (1) internal factors that impact the mobile market investment climate, and (2) external factors that impact the mobile market investment climate. For this purpose, “investment climate” is used as a relative term to mean the degree to which conditions in a country enable or discourage telecom investment. One “dependent” variable in each country, teledensity evolution, was assessed before, during, and after the conflict. While the independent variables were not controlled by the research team, their variations across the seven countries allowed evaluation of their impact on the dependent variable as controlled variables through natural experiment methodology.

The research team evaluated the relationship between the dependent and independent variables to determine whether teledensity evolution is favorably impacted by factors that make a conflict country more hospitable for supply-side telecom investment. If the hypothesis is valid, then it would be expected that there would be more positive teledensity evolution in countries with a more favorable internal and external investment climate. If the hypothesis is not valid, then it would not be expected to see strong correlation between the dependent and independent variables.

The **independent variables** – internal and external factors that make a country more or less hospitable for telecom investment – are largely qualitative rather than quantitative in nature. A methodical exercise was undertaken to break down the independent variables into their component factors (or subvariables), to evaluate those subvariables qualitatively and convert the qualitative evaluations into quantitative data.

Internal investment climate factors were assessed for each of the seven countries by assigning ratings from 0 (least hospitable) to 10 (most hospitable) based on five key internal factors relevant to private sector telecom investment. Each factor was assigned 2 points if clearly *favorable*, 1 point if *uncertain*, or 0 points if clearly *unfavorable*, yielding a possible point range of 0 to 10 over all five internal investment climate factors. The following explains each internal investment climate factor and the basis for the point allocations:

(1) Market openness to entry. This internal factor focuses on the presence or absence of legal or regulatory barriers to market entry in the mobile communications market. Conditions were considered *favorable* for market entry if two or more private sector operators had received long-term authorization to enter the mobile market. They were considered *uncertain* where multiple mobile operators were authorized but all were owned or controlled by the state, or where licensing was open but haphazard. Conditions were considered *unfavorable* where existing operators could not obtain long-term authorizations (new or renewed) or where market entry was legally restricted. The recent emergence of low earth orbit (LEO) satellite companies, such as Starlink or OneWeb, dramatically lowers the barriers to entry for internet service providers, and their service offering seems particularly appropriate for FCV countries where backbone terrestrial infrastructure may be inadequate, or damaged by conflict, such as in the case of the northern regions of Ethiopia, where it is estimated that over 3,000 km of fiber may have been destroyed as a result of the recent conflict. But the services still need to be licensed for local provision of services.

(2) Ease of private investment. This internal factor focuses on potential barriers to private investment in mobile markets other than service licensing (considered under market openness to entry) or spectrum licensing (considered under spectrum needs being met). This factor considered legal or regulatory limitation of market participation to wholly or partly state-owned enterprises, foreign investment restrictions, local ownership requirements, foreign exchange restrictions

17 ITU (International Telecommunication Union), Trends in Telecommunication Reform (ITU, Geneva, 2011), <https://www.itu.int/net/itunews/issues/2011/03/04.aspx>.

18 See Charles Kenny. 2013. “Moving beyond Mines and Mobiles: How Can IFC Add Value in Fragile States?” CGD Policy Paper 030 (Center for Global Development, Washington, DC), https://www.cgdev.org/sites/default/files/moving-beyond-mines_wcover_0.pdf.

on loan repayments or dividends, and other legal or practical limitations on private investment. Conditions were considered *favorable* where no significant barriers existed. They were considered *uncertain* where some barriers materially hindered private investment but it was nonetheless possible. Conditions were considered *unfavorable* if private investment was barred or heavily restricted. As a caveat here, it should be noted that ultimately the attractiveness of the market is more likely to determine foreign investment rather than regulations. Thus a large FCV market, such as Nigeria or Ethiopia, is more likely to attract an investment than a smaller one, such as Comoros or Tuvalu, and thus regulators in larger markets can perhaps afford to be more demanding.

(3) Spectrum needs being met. This internal factor considers the availability of spectrum to support mobile communications. Spectrum requirements were assessed from the perspective of prevailing and emerging technology at the relevant time (so it may involve spectrum required for 2G, 3G, or 4G as appropriate). Conditions were considered *favorable* if licensees or other authorized operators were generally able to acquire sufficient blocks of spectrum for sufficient periods of time to justify the deployment of the relevant technology. They were considered *uncertain* if the bandwidth, duration, or timing of spectrum releases was short-term, unpredictable, or inadequate. Conditions were considered *unfavorable* if the spectrum bands required for new technologies (such as 3G or 4G) were withheld from operators or other limitations suppressed investment in existing or new technologies.

(4) Level playing field. This internal factor focuses on whether the legal, regulatory, and practical framework in the relevant country offers mobile market participants equal opportunities to succeed.

Conditions were considered *favorable* if the market appeared to be functioning competitively without any significant bias for or against a specific network operator, regardless of whether this situation was based on law, regulation, or other circumstances. They were considered *uncertain* where bias was present and had an adverse impact on market participants, but it was not sufficient to thwart the viability of disfavored market participants. Conditions were considered *unfavorable* if one or more market participants had a clear and enduring advantage, whether by virtue of state ownership, an exclusive or special license, or significant market power in the absence of effective regulatory restraints on anticompetitive or predatory activity.

(5) Fiscal reasonableness. This internal factor considers the reasonableness of the overall fiscal burden imposed on licensed mobile network operators, whether by *de jure* or *de facto* authorities. It encompasses the full range of taxes, license and regulatory fees, and other fiscal impositions (with the exception of spectrum fees, which are considered separately as an aspect of spectrum needs being met). Reasonableness was assessed by comparing the fiscal burden in the relevant country with international best practices for fiscal policy in developing countries,¹⁹ with an emphasis on:

General taxes applicable to all or most businesses, such as corporate income tax, value-added tax, and goods and services tax.

Sector-specific taxes targeted to telecom equipment, handsets, service activation, and service provision, including surtaxes, excise taxes, and customs duties.²⁰

Nontax impositions such as non-spectrum regulatory fees, license fees, revenue sharing, concession fees, universal service fees, and fees charged by the state or state-owned enterprises for essential wholesale inputs other than spectrum.²¹

Transparency and predictability of the tax base, rate, and incidence and enforcement.

19 See Thornton Matheson and Patrick Petit. 2017. "Taxing Telecommunications in Developing Countries," IMF Working Paper WP/17/247 (International Monetary Fund, Washington, DC), <https://www.imf.org/en/Publications/WP/Issues/2017/11/15/Taxing-Telecommunications-in-Developing-Countries-45349>; ITU (International Telecommunication Union). 2013. "Taxing Telecommunication/ICT Services: An Overview" (ITU, Geneva, 2013), <https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/Taxation%20Study-final-en.pdf>. The GSMA has also sponsored numerous financial and economic studies quantifying and comparing the impact of various types of fiscal impositions on mobile ownership and use across both developed and developing countries over the past 15 years. The geographic scope of these reports has been global, regional, and focused on individual countries. The most recent reports are catalogued on GSMA's website at GSMA > Regulatory environment > Public Policy > Taxation, <https://www.gsma.com/publicpolicy/regulatory-environment/taxation>. The GSMA, as an industry association, may ordinarily be regarded as having a greater anti-tax bias than the IMF or the ITU. However, due to the comparative nature of GSMA-sponsored studies and their identification of potential revenue-neutral approaches to reduce market distortions, their data and findings merit consideration. For a general discussion of the current methodology employed by GSMA, Ernst & Young, and Deloitte in these studies, see Ernst & Young. 2017. Mobile Taxation Studies: Methodology Documentation (GSMA, London, 2020); Deloitte, Mobile Taxation Survey: A Methodological Note for GSMA (Deloitte, London), https://www.gsma.com/publicpolicy/wp-content/uploads/2020/04/Mobile_taxation_studies_Methodology_documentation.pdf; <https://www.gsma.com/publicpolicy/wp-content/uploads/2021/02/Mobile-taxation-survey-methodology-note.pdf>.

20 For a comprehensive discussion of the "pecking order" of sector-specific taxes that could be levied in addition to standard income and value-added taxes, based on capturing rents and minimizing distortions, see ITU. 2013. "Taxing Telecommunication/ICT Services: An Overview" (ITU, Geneva), <https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/Taxation%20Study-final-en.pdf>. Although telecom taxes are generally disfavored because (unlike, for example, tobacco and alcohol) telecommunications results in positive externalities, the administrative costs of assessing and collecting telecom taxes make it an attractive source of revenue for developing countries with limited capacity.

21 International practice recognizes the need for regulatory and licensing fees. In general, regulatory fees should be no greater than required to provide proper regulation.

In evaluating fiscal reasonableness, conditions were considered *favorable* if mobile operators faced a low or moderate overall fiscal burden, with the caveat that conditions were considered *uncertain* if sector-specific taxes or nontax impositions were likely to distort market performance or suppress investment, such as taxes on capital inputs or consumer access, or if the base, rate, or incidence of tax or conditions of enforcement were sufficiently nontransparent or unpredictable to suppress investment. Conditions were considered *unfavorable* if fiscal impositions were high compared with international norms or otherwise had a significant dampening impact on investment or mobile market performance. Where the fiscal burden was disproportionate in its impact on different mobile operators, this was considered as part of the assessment of a level playing field rather than fiscal reasonableness.

As a general point, while one can be sympathetic to the position that lower taxes are better for ICT sector (favorable fiscal reasonableness), one cannot avoid wondering what this means in the broader context of state building and consolidation in FCV context. Especially as governments in fragile states have limited resources to manage crises and help their population become more resilient to shocks. Revenue mobilization can raise funds and support social expenditures for better resilience of poor and vulnerable to shocks, including conflict. Afghanistan represents an example where tax revenue raised from the digital section was generally successful, and Somalia a case where considerable improvement has been made but where the overall financial contribution from the ICT sector is much lower than it should be.

External investment climate factors were assessed in a similar manner. Countries were rated from 0 (least hospitable) to 10 (most hospitable) based on five key external factors relevant to private sector telecom investment. Again, each factor was assigned 2 points if clearly *favorable*, 1 point if *uncertain*, or 0 points if clearly *unfavorable*, yielding a possible point range of 0 to 10 over all external factors. The following explains each external investment climate factor and the basis for the point allocations:

(6) Military or paramilitary interference, and overall security environment. This external factor focuses on deployment of foreign state forces or non-state military or paramilitary forces to block supplies from entering or moving within a conflict country or to engage in other actions intended to interfere directly with or block the construction, operation, maintenance, or repair of telecom networks or infrastructure. Domestic actions by the officially recognized government of the

host country were disregarded, as these are separately considered in relation to the relevant internal investment climate factor. The non-state military or paramilitary forces considered include those deployed by actors not supported by the officially recognized government of the host country, whether the non-state actor is located within or outside the host country, and such actors as Al-Shabaab, the Islamic State, al-Qaeda, or the Taliban.²² Collateral damage to telecom facilities and activities generally resulting from an ongoing conflict were disregarded unless the interference directly targeted telecom facilities or activities. Conditions were considered *favorable* if no such interference occurred during a conflict period or if any interference was extremely limited in duration or impact. They were considered *uncertain* if interference occurred for some duration, but it was well short of the entire conflict period, or if an extended period of interference was weak or only partially effective. Conditions were considered *unfavorable* if strong and effective foreign military or paramilitary interference occurred for a significant portion of the conflict period or otherwise had significant adverse impact on investment.

(7) International sanctions. This external factor focuses on broad-based sanctions and/or sanctions targeted at communications technology. Sanctions that targeted specified individuals or companies that were not involved in the telecom sector were excluded from consideration. Conditions were considered *favorable* if no relevant sanctions were present. They were considered *uncertain* if sanctions were only present for part of the conflict period or if the sanctions were weak or ineffective. This also included cases in which despite strong and effective sanctions from most countries, the equipment or software needed for communications technology remained readily available from at least one major supplier in the country. Conditions were considered unfavorable if strong and effective sanctions were present for all or most of the conflict period.

(8) Travel restrictions. This external factor considers travel restrictions or border closures imposed by countries other than the host country that were related to the conflict and restricted inbound and outbound travel by operator executives and vendor technicians. Customary visa requirements were disregarded. Travel restrictions or temporary border closures due to COVID-19 or other health-related circumstances were also disregarded. General security threats were disregarded unless they severely limited scheduled flights or ground travel and their impact was involuntarily to restrict travel to operator facilities in the host country. Conditions were considered *favorable*

²² Unauthorized paramilitary actors within a host country are considered “foreign” and hence external for these purposes because they are outside the control of the officially recognized government of the host country.

if no relevant travel restrictions or border closures were imposed. They were considered *uncertain* if travel restrictions or border closures were in effect for only part of the conflict or if no formal travel restrictions were imposed but ingress and egress to and from the host country were effectively restricted. Conditions were considered *unfavorable* if formal and effective travel restrictions or complete border closures were present for all or most of the conflict period.

(9) International aid for telecommunications. This external factor relates to bilateral and multilateral aid during the conflict that was targeted to or directly benefited the civilian telecom sector. Qualifying aid could include both technical assistance (in kind or financially underwritten) and financing (grants, loans, or equity) for investment or operating costs. Non-civilian aid to provide non-public telecommunications for military, security, or relief personnel was disregarded unless the funds supported the development of public telecommunications. Conditions were considered *favorable* if aid was significant in relation to the needs of the conflict country or the size of the sector. Conditions were considered *uncertain* where some aid was provided, but the level or focus was not significant. They were considered *unfavorable* where negligible or no aid was provided. Of course, the actual needs of different FCV countries for international assistance are very different in range, and this is not necessarily reflected in the actual supply of international aid.

(10) International security intervention. This external factor considers bilateral or multilateral external interventions to promote security in the conflict country. This may include military interventions directed at terrorist groups or insurgents, or peacekeeping interventions intended to quell internal conflict between competing factions. Conditions were considered *favorable* if strong and effective international security intervention occurred for an extended portion of the conflict period. They were considered *uncertain* if intermittent or weak international security intervention occurred. Conditions were considered *unfavorable* if no international security intervention occurred or if any interventions were largely ineffective.

Converting qualitative data to quantitative data is not without perils or shortcomings. Do some qualitative factors merit more quantitative weight than others? What is the appropriate quantitative assessment of a factor based on the qualitative information on a complex topic? The study endeavored to account for these potential shortcomings in several ways. First, each point assignment for each factor for each country was evaluated and made by the same team as a joint decision through an iterative and interactive process of study, discussion, and debate. Second, a strong effort was made to grade each country on the same curve – so any systemic biases would not impact the relative evaluation of individual countries. The combined effect of these efforts was meant to ensure consistency in the evaluation of all seven countries. Thus, while the study may not provide sufficient output knowledge to discern the relative importance of any individual investment climate factor, it offers relatively robust insights into the combined impact of those factors on outcomes across countries.

Teledensity evolution – the dependent variable in the study – was used to assess the impact of the supply-side investment climate – measured through a combination of 10 independent variables – on telecom sector performance over time. Teledensity is a common demand-side measure of customer adoption. It was considered a better proxy for telecom sector outcomes than supply-side measures such as coverage (access) or investment (capital expenditures) because it combines access with affordability and other demand-side considerations to measure the extent to which individuals actually use telecommunications and hence benefit from connectivity. The long-term nature of this study requires selection of a reliable teledensity measure covering the entire 2000–20 period. Due to the study's focus on mobile communications, teledensity measures for fixed telephony or fixed broadband would not be relevant.²³

23 Fixed telephony (voice services) teledensity has been measured throughout the 21-year study period, but it is not a good indicator. Fixed telephony penetration was never significant in most developing countries and has declined in many countries during the 21-year period due to substitution of mobile voice for fixed telephony and substitution of voice-over-Internet Protocol and voice-over-broadband for basic telephony. See UNCTAD (United Nations Conference on Trade and Development). 2009. Information Economy Report 2009 – Trends and Outlook in Turbulent Times at (UNCTAD, Geneva, 2009), 2–3, https://unctad.org/system/files/official-document/ier2009_en.pdf. Fixed broadband teledensity has only been measured in recent years and would not cover the entire 21-year study period.

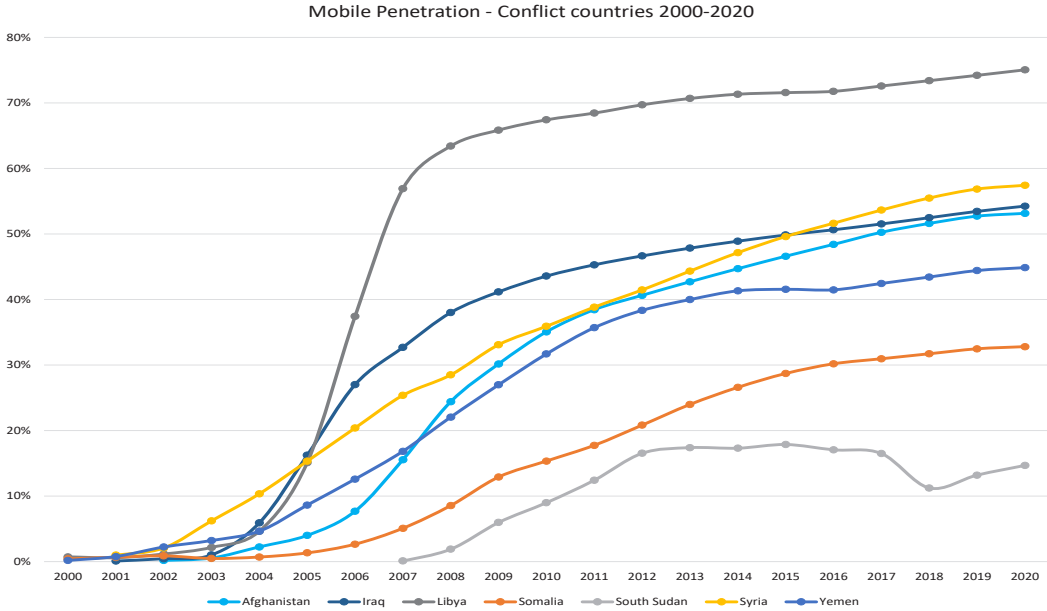
The two primary sources of comprehensive and reliable data on mobile teledensity are the International Telecommunication Union (ITU), a specialized agency of the United Nations responsible for ICT data,²⁴ and the Global System for Mobile Communications (GSMA), a nonprofit global organization that promotes the interests of the mobile communications industry.²⁵

Both the ITU and GSMA collect and report two mobile teledensity measures, mobile penetration and mobile broadband penetration. Mobile penetration is technology and content agnostic, counting all mobile subscriptions regardless of whether they are used for voice, text, or internet. Mobile broadband penetration counts only those mobile subscriptions that include broadband service. Mobile penetration data are available from both the ITU and GSMA for the entire 21-year study period, whereas mobile broadband penetration data are only available for recent years during the study period. Specifically, the ITU has only tracked mobile broadband penetration in the relevant countries since 2009 and data before 2015 are incomplete, although the absence of data probably implies that no 3G service had yet been launched. GSMA has reported mobile broadband penetration since 2010, but some of the earlier years appear to have been reverse-extrapolated from data collected in more recent years, even if 3G+ services had not yet been launched. Apart from covering the entire

study period, mobile penetration also offers a fuller picture of mobile teledensity evolution as consumers shift from narrowband to broadband use. For these reasons, the study adopts mobile penetration – the general category that includes all narrowband and broadband mobile connections – as its teledensity measure. Data for unique mobile subscribers are used rather than total subscriber identity module (SIM) card subscriptions.

Another consideration was whether demand for mobile services in the seven countries remained sufficiently below market saturation so as to be sensitive to supply-side developments. In some countries, mobile penetration has saturated the market and changes in mobile penetration may no longer reflect changes in the underlying supply-side investment. As shown in figure 2, mobile penetration in the seven countries, measured by the number of unique subscribers as a percentage of total population, remained well below 100 percent over the entire 21-year period.²⁶ With the possible exception of Libya, where mobile penetration has exceeded the adult population, mobile penetration thus appears to have remained a relevant teledensity measure for all seven countries over the 21-year period studied.

Figure 2: Mobile teledensity (unique mobile subscribers per 100 inhabitants) in the seven conflict countries studied, 2000–20



Source: MacMillan Keck, adapted from GSMA data.

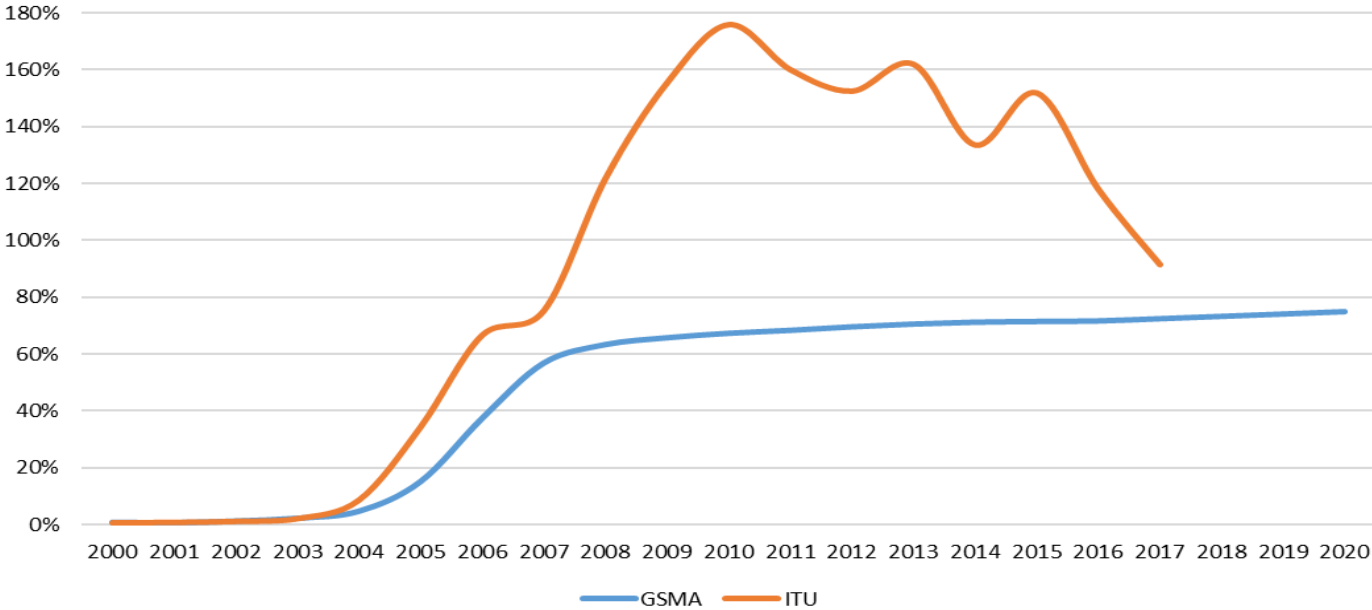
24 The ITU has collected and reported mobile penetration every year since before 2000. It typically collects data annually from national telecom ministries or regulatory authorities and national statistical offices, which in turn collect data from operators and other sources, based on ITU-standardized criteria. If a country does not submit data, the ITU may include its own estimates. See ITU > Home > ITU-D > ITU-D Statistics > World Telecommunications / ICT Indicators (2021) <https://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>.

25 GSMA provides estimated data on every mobile operator in every country. It has collected and reported mobile penetration data from its members every year since 2000. GSMA collects data daily, directly from mobile operators, based on standardized criteria. See GSMA Intelligence > Home > Products and Services > Data (2021) <https://www.gsmainelligence.com/data/>. However, two major limitations with GSMA data are that not all mobile operators are GSMA members (Somalia is an example where operators are not generally GSMA members), and the data are generated through algorithmic projections to make up for missing data.

26 GSMA data (2021).

Although both the ITU and GSMA serve as comprehensive *mobile penetration data sources*, the usefulness of their data for this study is not equal. ITU mobile penetration data measure all active mobile SIMs, while GSMA mobile penetration data measure both total SIMs and unique mobile subscribers. In some countries, mobile customers have multiple active SIMs, a practice that arises, among other reasons, when mobile customers endeavor to keep all their calls “on net” to avoid extra charges imposed by operators for “off net” calls. Because multi-SIM practices vary significantly from country to country, ITU data have limited value in conducting a comparative assessment of teledensity outcomes across countries. Use of ITU data in this study would introduce a substantial risk that differences between countries in mobile penetration may be ascribed to differences in supply-side investment climates when they are instead due to differences in multi-SIM use practices between countries. For example, figure 3 compares ITU and GSMA mobile penetration data for Libya. The ITU data show wide swings in active SIMs, which may have little or nothing to do with supply-side investment, and data are missing from 2018 through 2020. The GSMA data show more gradual and stable growth in unique subscribers, because the data are generated by algorithmic progressions rather than actual data.

Figure 3: Mobile penetration in Libya – ITU versus GSMA measures, 2000–20



Note: GSMA = Global System for Mobile Communications; ITU = International Telecommunication Union.

Despite their obvious limitations, GSMA data were used for the study to avoid data anomalies caused by variations in multi-SIM-use practices across countries. GSMA data also provide a more accurate view of how many individuals actually use mobile communications, which is a better statistical measure of teledensity.

Teledensity evolution was assessed based on *comparative teledensity impact* during the conflict period in each country. This was accomplished by first considering actual teledensity evolution for the 21-year period from 2000 through 2020 (except in the case of South Sudan, where the assessment began in 2011, when South Sudan first became a separate country). GSMA data for actual mobile penetration levels were retrieved and tested for completeness for each country before, during, and after the conflict period.

In addition, projected “but-for-the-conflict” mobile penetration levels were developed for each country during and after the conflict period. These projections required the exercise of reasonable judgments. To inform those judgments, the team considered a country’s actual penetration evolution before the conflict and the penetration evolution in neighboring countries before, during, and after the conflict to gauge the “but-for-the-conflict” projections. The adult (age 15 and over) population as a percentage of total population was also considered in each country as a potential restraint on unique subscriber penetration levels. Some wealthier countries have achieved unique subscriber penetration levels (as estimated by GSMA) well in excess of the adult population size, meaning that a sizable number of youths have and use mobile phones (or, more likely, that GSMA data, which are based on algorithmic projections, are not corrected for demographics). In less wealthy countries, adult population size typically functions to some degree as an invisible asymptote on the growth curve for unique subscriber mobile penetration.

The projection model adopted the most likely market evolution scenario that would have occurred but-for-the-conflict if the conflict country had seen gradual improvement in its internal investment climate factors over time and received typical levels of international aid, in line with what was generally characteristic of other countries in the region. The projections thus assume a level of institutional reform that would have gradually improved the market, allowing for greater investor confidence, and anticipate the regionally competitive introduction of new technologies (3G and 4G). Benchmarking against developments in the region was employed to guide the modeling process to ensure that the but-for-the-conflict projections for a conflict country do not assume it would have become or remained an outlier in the region. This approach attenuates but-for-the-conflict investment climate differences between countries to enable a more controlled assessment of whether investment climate differences during conflict impact mobile teledensity outcomes.

After the actual and projected mobile penetration levels were calculated for each country, year-on-year *growth rates* were derived for actual and for projected but-for-the-conflict mobile penetration. It was important to use *teledensity growth rates*, rather than actual teledensity, to enable cross-country comparisons. Differences in teledensity across countries are caused by many factors other than the internal and external telecom investment climate factors being assessed. Such other factors include, for example, the strength of the economy of a country and the year of measurement of teledensity (which varies due to the different timeframes of the conflicts being studied). Assessing growth rates partially corrects for these differences.

The mobile penetration *growth rate deficit* for each country was derived by comparing actual penetration growth rates to projected but-for-the-conflict penetration growth rates. This enabled calculation of the average annual level of growth underperformance during the conflict period. This calculation was used to measure the impact on teledensity evolution. By comparing a country's actual growth rate to its own potential growth rate, this measure is intended to complete the process of correcting for differences in teledensity unrelated to the internal and external investment climate factors.

Finally, the study assessed the degree of correlation between the independent variables and the dependent variable. The goal was to determine whether and to what extent low scores on internal and external telecom investment climate factors impact the teledensity growth rate deficit. This evaluation concluded with an overall assessment of the implications of the findings for potential intra-conflict and post-conflict interventions by the World Bank in conflict countries.

1.3 Findings and results across the case study countries

This section presents comparative findings and results across all the countries. Later sections present more detailed findings and results for each case study country. A reader wanting a deeper understanding of the qualitative and quantitative data should review the separate section for each country.

The core output of this study, at the aggregate level, is a comparison of telecom investment climate ratings with teledensity outcomes. This analysis brings together all the source and derivative data that were collected, developed, and analyzed across all seven countries to test the core hypothesis that the degree of adverse impact on teledensity during conflict is driven in part by internal and external barriers to telecom investment, comprising two sets of factors over which state actors (whether or not officially recognized) and international actors have some control.

As set out in the following passages, *the results of this study demonstrate that the data strongly support the hypothesis*. The root causes of internal and external institutional barriers to telecom investment during periods of conflict often stem from circumstances over which state and international actors have some control, even during the conflict; hence, there are opportunities to improve outcomes through the manner by which they exercise that control.

This is powerful evidence-based information that can be applied by the World Bank and other state and international actors in countries affected by FCVf to fashion practical interventions to reduce the negative impact of FCV on telecom sector performance.

1.4 Summary of the derivative data developed in the case studies

Each country was rated based on the internal and external telecom investment climate criteria discussed above. For each factor, a 0 signifies unfavorable conditions, a 1 signifies uncertain conditions, and a 2 signifies favorable conditions. The maximum country score is 10 for internal factors and 10 for external factors. The investment climate results are set out in tables 1 and 2 and depicted in figure 4.

Table 1: Comparative internal investment climate factor ratings for all seven countries, 2020

Internal investment climate factor	AF	IQ	LY	SO	SS	SY	YE
Market open to entry	2	2	0	2	0	1	1
Ease of private investment	2	1	0	1	0	1	0
Spectrum needs met	2	1	2	2	1	2	0
Level playing field	2	2	0	0	0	0	1
Fiscal reasonableness	1	2	1	2	0	0	0
Total	9	8	3	7	1	4	2

Source: MacMillan Keck.

Note (for Tables 1 and 2): AF = Afghanistan; IQ = Iraq; LY = Libya; SO = Somalia; SS = South Sudan; SY = Syrian Arab Republic; YE = Republic of Yemen. In the table, 0 signifies unfavorable conditions, a 1 signifies uncertain conditions, and a 2 signifies favorable conditions.

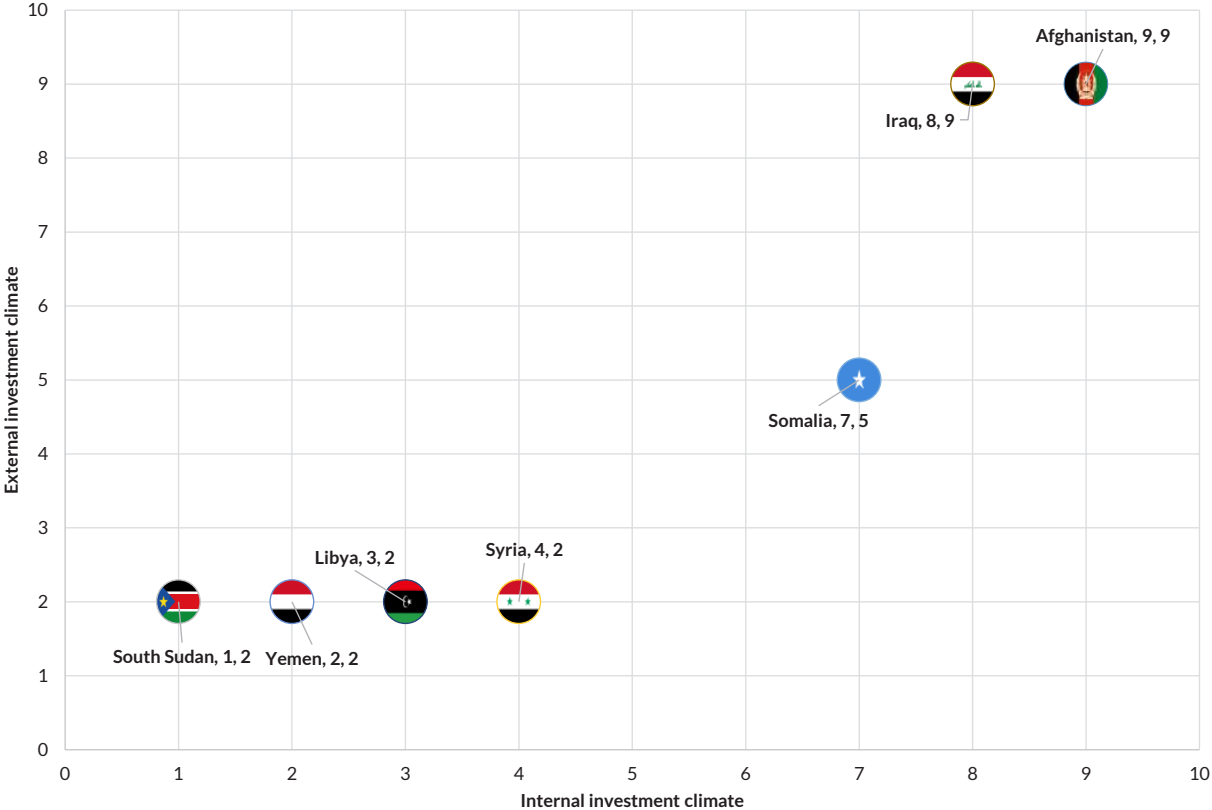
Table 2: Comparative external investment climate factor ratings for all seven countries, 2020

External investment climate factor	AF	IQ	LY	SO	SS	SY	YE
Military or paramilitary interference	1	1	0	1	0	1	0
International sanctions	2	2	2	1	1	1	2
Travel restrictions	2	2	0	1	1	0	0
International aid for telecommunications	2	2	0	1	0	0	0
International security intervention	2	2	0	1	0	0	0
Total	9	9	2	5	2	2	2

Source: MacMillan Keck.

Each country's teledensity growth rate deficit was derived by comparing actual mobile penetration evolution with projected but-for-the-conflict mobile penetration evolution. This involved calculating the actual average annual mobile penetration growth rate and the average annual projected but-for-the-conflict mobile teledensity growth rate over each country's conflict period. The growth rate deficit is the percentage of the average projected but-for-the-conflict growth rate represented by the difference between the two average growth rates.

Figure 4: Relative internal and external telecom investment climate ratings, 2020



Source: MacMillan Keck.

Table 3 sets out for each country the actual and projected but-for-the-conflict annual mobile penetration growth rates over the conflict period, and the resulting growth rate deficit, alongside the internal and external factor investment climate rating totals. Together, the entries in the first, second, and fifth columns in table 3 comprise the independent and dependent variables derived from the underlying source data that will be used to test the hypothesis.

Table 3: Comparative investment climate ratings and teledensity outcomes

Country	Internal factor investment climate rating (out of 10)	External factor investment climate rating (out of 10)	Actual annual mobile penetration growth rate (%)	Projected but-for-the-conflict annual mobile penetration growth rate (%)	Teledensity growth rate deficit (%)
Afghanistan	9	9	3.09	3.22	-4
Iraq	8	9	5.53	5.98	-7
Libya	3	2	0.76	1.07	-29
Somalia	7	5	2.01	2.30	-13
South Sudan	1	2	-0.39	1.34	-129 ^a
Syrian Arab Republic	4	2	2.15	2.58	-17
Yemen, Rep.	2	2	0.70	1.67	-58

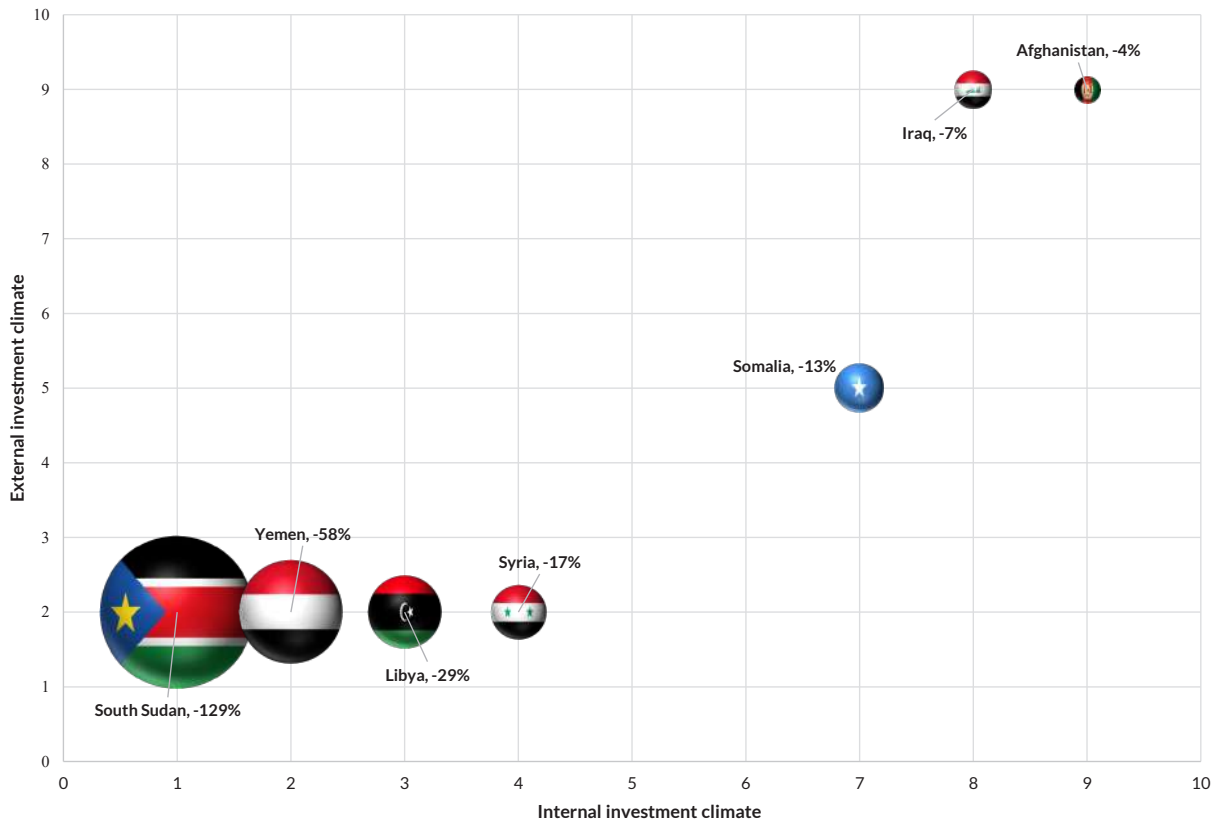
Source: MacMillan Keck.

a. The teledensity growth rate deficit for South Sudan is anomalous because it compares the difference between negative and positive quantities.

Correlation of the mobile teledensity trend with the internal and external investment climate

Figure 5 plots the relevant data from table 3 in three dimensions.

Figure 5: Relationship between investment climate and mobile teledensity growth rate deficit



Source: MacMillan Keck.

Note: Bubbles indicate the size of the teledensity growth rate deficit, from table 3.

The mobile penetration growth rate deficit for a country (the dependent variable) is represented by the relative size of the circle for that country. The internal and external investment climates (the independent variables) are represented by the position of the bubble in relation to the x- and y-axes. If the hypothesis being tested is correct, the size of the bubble would be expected to decrease as a country's investment climate moves to the right along the internal hospitality rating axis or upward along the external hospitality rating axis. The outputs graphed in figure 5 are generally consistent with this expectation, with decreasing ball size moving from the lower left corner to the upper right corner. In other words, the data consistently indicate that deficits in mobile teledensity growth rates decline as internal and external investment climate ratings improve.

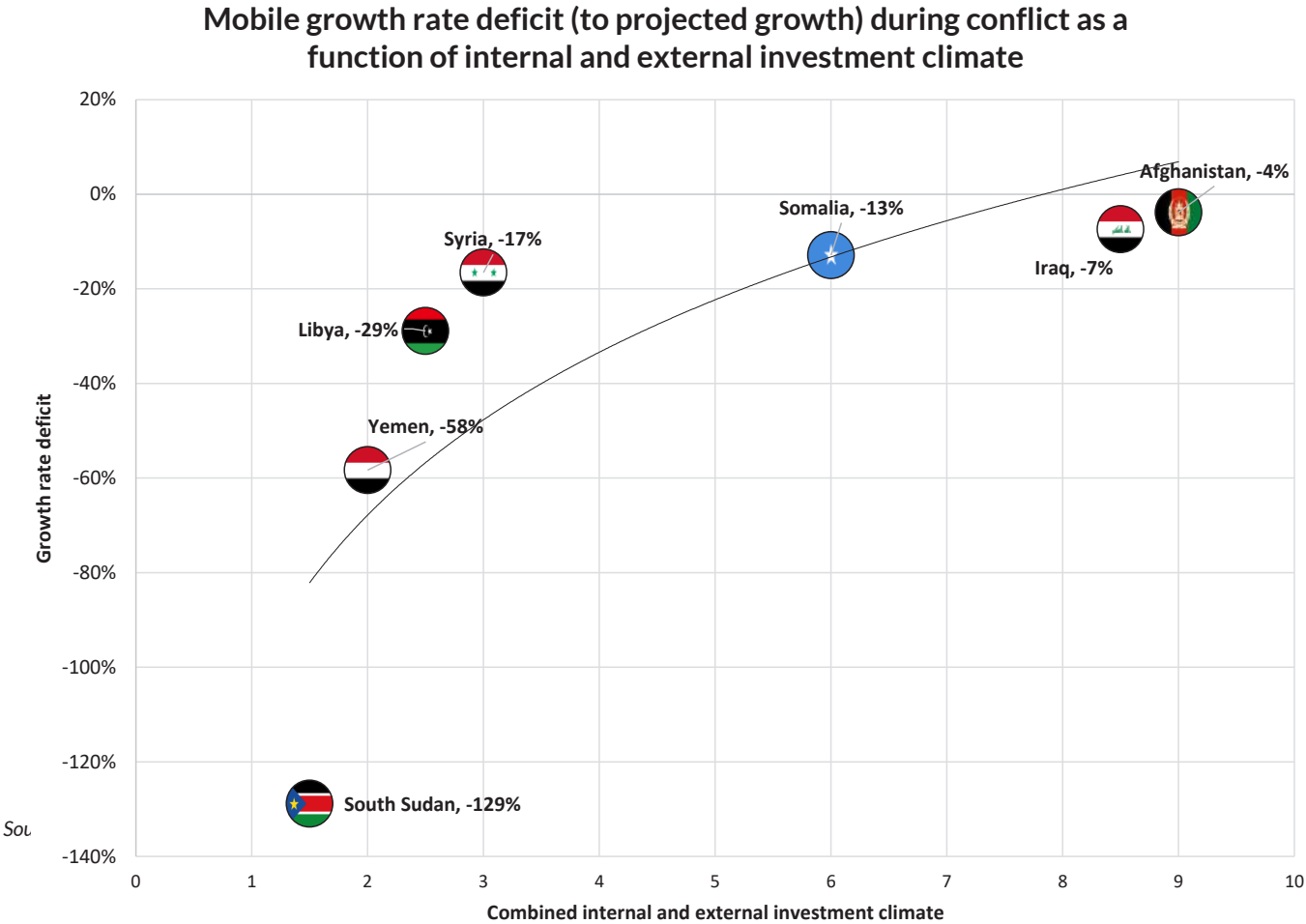
Although all the countries saw some degradation of teledensity growth during their conflict periods, some were more adversely impacted than others. The comparative relationship between the dependent and independent variables across the seven countries strongly supports the tested hypothesis that the combination of internal and external investment climate factors that impact supply-side telecom investment directly impact the extent of the teledensity growth rate deficit during conflict. The data do not show a linear relationship between investment climate and teledensity outcomes. Teledensity improvements appear to achieve diminishing returns with further investment climate improvements, but the data show a direct relationship without exception. These results indicate that steps to improve the telecom investment climate factors during periods of conflict should improve teledensity outcomes, particularly in countries with very low internal and external investment climate ratings.

The detailed country-by-country analyses also indicate that other factors may be at work and therefore may result in less optimal outcomes in some countries compared with others, notwithstanding the presence of similarly favorable investment climate factors.

Correlation of the mobile teledensity growth rate with the internal investment climate

The correlation of the mobile teledensity growth rate deficit with internal investment climate factors (ignoring external investment climate factors) was separately tested. There is a strong correlation between internal investment climate hospitality and teledensity outcomes, as shown in figure 6. The trend curve suggests that the relationship is logarithmic rather than linear. This portends significant returns on internal investment climate improvements where the baseline is low, such as in South Sudan and the Republic of Yemen, with diminishing returns as the baseline improves.

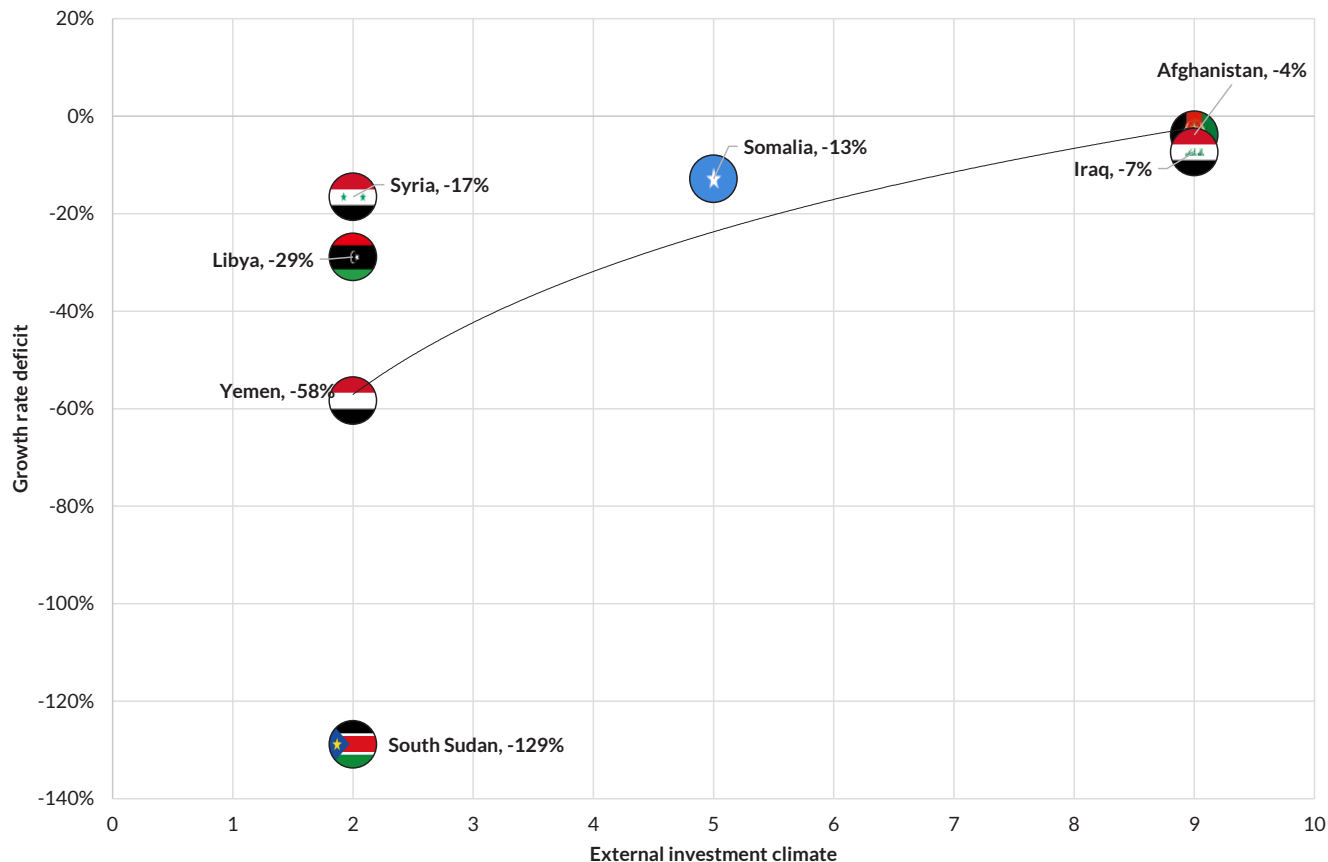
Figure 6: Relationship between internal investment climate and teledensity growth rate deficit



Correlation of the mobile teledensity growth rate with the external investment climate

The correlation of the mobile teledensity growth rate deficit and external investment climate factors (ignoring internal investment climate factors) was also separately tested. The results are depicted in figure 7.²⁷ The data again reveal a logarithmic relationship between external investment climate hospitality and teledensity outcomes. As with the internal investment climate, returns on external investment climate improvements, in terms of increased teledensity growth rates, diminish significantly once a threshold level of investment hospitality has been reached.

Figure 7: Relationship between external investment climate and teledensity growth rate deficit



Source: MacMillan Keck.

Overall, the data suggest that the potential for increasing mobile teledensity growth rates by improving the external investment climate may be most significant when supply lines have been cut off through blockades or other military or paramilitary interference, and/or sanctions, which appear to have been most effective for South Sudan and the Republic of Yemen. The correlation for the remaining countries is more subtle, although nonetheless consistent with the hypothesis. As discussed in detail in the individual country sections, Libya and the Syrian Arab Republic may have managed to source equipment from various sources, despite EU and US sanctions. Afghanistan, Iraq, and Somalia were generally less restricted in sourcing equipment.

²⁷ The gradual effect is however less obvious: the difference between the Syrian Arab Republic and Iraq is only 10 percent, although their external investment climate ratings range from 2 to 9. There is a strong difference in the teledensity growth rates between Syria and South Sudan, although they are both rated 2.

1.5 Implications for donor interventions in conflict countries

The findings from this study have significant implications for the international community considering providing support to conflict countries. Numerous studies provide support for donor support to the digital sector in FCV countries, by demonstrating the positive impact of teledensity improvements. A 1996 study, one of the earliest on the subject, found evidence of a positive causal link between telecommunication infrastructure and economic growth, provided that a critical mass of telecommunication infrastructure was present.²⁸ More recent studies have demonstrated the positive impact that increased broadband penetration can have on poverty reduction and economic growth. A 2020 study, sponsored by the World Bank, found that increased 3G mobile broadband access and use in Nigeria from 2010 to 2015 improved household welfare, especially in rural areas, lifting some 2.5 million people out of extreme poverty.²⁹ A 2018 International Telecommunication Union-sponsored study of 63 countries with gross domestic product (GDP) per capita less than USD 12,000 found that a 1.0 percent increase in mobile broadband penetration yielded a 0.2 percent increase in GDP.³⁰ A study in 2015 sponsored by the World Bank noted threshold effects, indicating that the link between broadband and economic growth is stronger once the level of 30 broadband users per 100 inhabitants is reached.³¹

It is intuitive, and therefore often assumed, that improvements in the investment climate factors described above during conflict periods would also improve teledensity outcomes, with flow-through benefits to the underlying economy and quality of life. However, to the knowledge of the research team, the study presented in this report represents the first systematic effort to assess and document the reasonableness of this assumption. The study results confirm the assumed hypothesis, indicating that taking steps to improve internal and external telecom investment climate factors *during* periods of conflict should improve teledensity outcomes, particularly when baseline levels are low.

Four of the external telecom investment climate factors lie outside the domain of intervention by the international donors and are thus not part of its standard toolkit. These include military or paramilitary interference, international sanctions, travel restrictions, and international security intervention. The data suggest that where unfavorable conditions concurrently subsist on several of these four factors, this can significantly suppress sector performance during a conflict.

1.6 Lessons learned and how the Bank engaged in the digital sectors of Afghanistan, Somalia and South Sudan

Political and economic situation is volatile in FCV settings and years of conflict and fragility can leave an economy with a range of challenges, including acute poverty and vulnerability, a recurrent external trade deficit and weak institutions. Active insurgency and incomplete political settlement can also affect a country's progress out of fragility. Under these settings, the Bank must continue to engage. The Bank's engagement in the digital sector of Afghanistan, Somalia, and South Sudan was through various Bank lending projects, including but not limited to the Digital CASA project in Afghanistan in 2018, the SCALED-UP project in Somalia in 2019, etc. Various lessons can be learned through these programs and applied to operational cases in other FCV settings. The following describes some lessons learned through Bank engagements:

AFGHANISTAN:

The WBG has had a number of digital interventions in the Afghanistan during the study period, but cooperation is currently suspended following the Taliban takeover in 2021. The main digital project was the *Afghanistan ICT Sector Development Project* (P121755) which ran from April 2011 to December 2017 and disbursed US\$41.8m of the US\$50m grant originally allocated (83.6 percent) with one activity cancelled (on support for an ICT Village). The project development objective (PDO) was to: *to expand connectivity, mainstream use of mobile applications in strategic sectors in the government and support development of the local IT industry*. It was processed as an Emergency Recovery Loan and implemented by the Ministry of Communications and IT (MCIT).

28 Lars-Hendrik Röller and Leonard Waverman. 1996. "Telecommunications Infrastructure and Economic Development: A Simultaneous Approach," WZB Discussion Paper No. FS IV 96-16 (Wissenschaftszentrum Berlin für Sozialforschung, Berlin), <https://www.econstor.eu/bitstream/10419/50958/1/219965056.pdf>.

29 Calvin Bahia, Pau Castells, Genaro Cruz, Takaaki Masaki, Xavier Pedrós, Tobias Pfütze, Carlos Rodríguez-Castelán, and Hernan Winkler. 2020. "The Welfare Effects of Mobile Broadband Internet: Evidence from Nigeria," Policy Research Working Paper 9230 (World Bank, Washington, DC), <https://documents1.worldbank.org/curated/en/626011588705072099/pdf/The-Welfare-Effects-of-Mobile-Broadband-Internet-Evidence-from-Nigeria.pdf>.

30 Raul Katz and Fernando Callorda. 2018. "The Economic Contribution of Broadband, Digitization and ICT Regulation" (International Telecommunication Union, Geneva), 14, https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/FINAL_1d_18-00513_Broadband-and-Digital-Transformation-E.pdf.

31 Michael Mingos. 2015. "Exploring the Relationship between Broadband and Economic Growth," Background Paper prepared for World Development Report 2016: Digital Dividends (World Bank, Washington, DC), <https://documents1.worldbank.org/curated/en/178701467988875888/pdf/102955-WP-Box394845B-PUBLIC-WDR16-BP-Exploring-the-Relationship-between-Broadband-and-Economic-Growth-Mingos.pdf>.

The Implementation Completion Report (ICR), published in 2018, rated the outcomes of the project as “Moderately Satisfactory” and noted that the successes of the project included extension of connectivity, with the national backbone fiber optic network (around 1,000 km) being constructed on a turnkey basis, and adoption of an Open Access Policy in 2016. All five results indicators for the project were met or exceeded. Notably, the number of internet users in the country grew from 15,000 in 2011 to more than 3.5 million by 2017, and a reduction in the average monthly retail price of internet connectivity from US\$450 in 2011 to US\$37 in 2017.

The ICT sector development project was succeeded by the Afghanistan component of the *Digital CASA* (Central Asia/South Asia; P156894) project, which provided for a grant of US\$51m, approved in March 2018. But only US\$4.2m had been disbursed (8.2 percent) before the project’s cancellation in 2021, following the Taliban takeover, when it was rated as “Unsatisfactory”. The ICR noted that although the operating environment for telecoms improved during the period, for instance the level of internet usage, the changes were not attributable to the project.

SOMALIA

The main digital engagement was the *ICT Sector Support Program in Somalia*, which was implemented with grant funding as a series of two projects. Phase I (P145588), of the project ran from 2014 to 2016, with a budget of US\$2m. Phase II (P152358) of the project ran from 2015 to 2020, with an initial budget of US\$14m. The program was supplemented with additional financing of US\$2m, as well as parallel financing from the European Union of US\$1.2m. A planned third phase of the program was covered under the SCALED-UP program (P168115). The PDO for the project was to: *Support the ICT Sector in Somalia by contributing to establishing an enabling environment and by encouraging efficiency and equity in access to connectivity*. The government counterparts were the Ministry of Posts, Telecommunications and Technology (MPTT), the National Communications Authority (NCA; created in 2017), the Ministry of Finance, Central Bank of Somalia (CBS) and the SomaliREN, the national Research and Education Network

The ICR, published in 2021, rated the outcomes of the project as “Satisfactory” and noted that the successes of the project the passage of the Communications Act in 2017, as well as improved sector performance and monitoring was also achieved by strengthening the MPTT and establishing the NCA. A significant achievement was the groundwork done for the landing of the first submarine cable in Somalia, in 2013, with the arrival of the EASSy cable, part-financed by IFC.

The Bank funds, used for the pre-purchase of internet capacity for the Federal Government and the SomaliREN, also helped stimulate the private sector to invest in a 48km fiber ring linking some 26 different ministry sites around Mogadishu. The project met or exceeded all its targets. Somalia is ranked as the cheapest country in Africa to purchase a GB of mobile data, and the seventh cheapest country in the world, for US\$0.50³². ITU data indicates that the price of a low-user basket of mobile services (70 mins of calls, 20 SMS and 500 MB of data) for Somalia fell from US\$15.40 in 2015, when the project started, to US\$3.70 in 2019, a fall of 76 percent.³³

SOUTH SUDAN

There have been several advisory services and analytical program in South Sudan, in particular the grant-funded technical assistance program “*ICT Sector Support Program*” which ran from March 2012 to June 2014. The main outcome from this passage of the South Sudan Communications Act in 2012 and the conduct of workshops and regulatory training programs, together with partners the African Development Bank (AfDFB), the ITU and the Commonwealth Telecommunications Organisation (CTO). The program was also used for the preparation of two lending programs. The second of these, which would have financed connectivity from the Uganda border into Juba, never materialised, because of the country’s descent into civil war. But one program did at least start, the South Sudan- Eastern Africa Regional Transport, Trade and Development Facilitation Program (Phase One) (SS-EARTTDFP; P131426).

The SS-EARTTDFP program was implemented from May 2014 to September 2018, with a budget of US\$255m. The objective of the project was to enhance regional connectivity and integration of the Recipient with its Eastern Africa neighbouring countries, and its access to seaports. The project was rated as “Moderately Unsatisfactory”. Though the project planned to install a total of 340km, alongside the road from Juba to the Kenyan border, no fiber had been installed up to the time of project cancellation, because of the ongoing civil war. Nevertheless, on the Kenyan side of the border, the same regional program has succeeded in laying fiber alongside the road that runs 640 km from Eldoret to the South Sudan border. Thus, as and when the fiber on the South Sudan side of the border is laid, the planned connectivity program can be completed. The Juba to Kenya fiber project has now been taken up under a new pipeline program, *Eastern Africa – Regional Digital Integration Program* (P176181).

32 Cable.co.uk, April 2021 survey.

33 <https://www.itu.int/net4/ITU-D/ipb/#ipbtimeseries-tab>.

Lessons Learned

Institutional instabilities. All three projects suffered from institutional instability. Ministers within various ministries, and heads of various organizations for which engagements and operations were necessarily changed several times during the project implementation (the Minister with responsibility for Telecoms changed five times during project implementation in Somalia, for instance), and this is characteristic for projects in FCV settings. This was also the case in Afghanistan, and meant critical relations needed to be re-established multiple times and project priorities re-agreed upon when there was a change in leadership in organizations. The changes of leadership within organizations significantly slowed commencement of operations as key policies within the project typically require deep institutional backing and new decision makers and leaders must be re-acquainted with these priorities.

Intra-governmental discoordination. A lack of coordination between government agencies and stakeholders has, in many cases, slowed project implementation, despite efforts to ensure alignment from various government agencies. This was the case in all three countries. In South Sudan, for instance, the imperative of the Ministry of Finance to raise tax revenues led eventually to the cancellation of the license of the leading mobile operator at the time (Vivacell), which was adjudged to have defaulted on tax liabilities (even though it had a license which provided for a tax waiver). One outcome of this was that hundreds of thousands of customers lost service overnight. As a result of conflicting ministerial interest, coordinating and implementing the projects was difficult, delaying commencement of project activities, and hampering institutional ownership of results.

Industry push-back and regulatory capture. Under FCV settings, the digital sector can still operate, and even thrive, under unregulated conditions, as was the case in Somalia. But this allows strong and entrenched stakeholders and telecom operators to benefit from this regulatory vacuum by establishing dominant market positions, for instance, with limited payment of formal taxes. As a result, the Bank's engagement can face resistance from stakeholders within the digital sector and industry players, and reform efforts can face significant opposition from vested interests that prefer the status quo. This has also been the case in Afghanistan. By contrast in South Sudan, the operators have supported the World Bank's recommendations on fiscal policy, as these were seen as much more moderate than those of the Government. As a general point, industry players claim to be burdened by informal taxes necessary to pay for security to operate within an FCV setting.

1.7 The Bank's Digital Investment in FCV economies

The World Bank has a growing portfolio of lending (mainly in the form of grants) to FCV economies, and the portfolio of the Digital Development Global Practice is becoming an important part of this. Currently active digital projects are worth more than 1.5 billion US dollars (US\$1,545.8m) spread across 17 different FCV countries and territories. Pipeline national and regional projects worth a further US\$1,168m are under preparation, covering 7 different countries, of which four are not covered in ongoing projects. Thus, in total, 21 out of 37 FCV countries and territories (56.8 percent) are currently covered by actual or planned Digital Development operations. Recently approved projects and pipeline projects in FCV countries include the following:

Ongoing projects

- **Afghanistan** Digital CASA project (US\$51m, approved in March 2018)
- **Burkina Faso** e-Government project (US\$20m, approved in Jan 2017)
- **Burundi** Digital Foundations Project (US\$50m, approved in June 2022)
- **RCIP-4 Comoros** (US\$32m, in two phases, approved in September 2013 and Nov 2018)
- **Digital Cameroon** (US\$100m, approved in September 2021)
- **Congo** Digital Acceleration Program (US\$100m, approved in June 2022)
- **Digital Ethiopia** (US\$200m), approved in April 2021)
- **Haiti** Digital Acceleration Program (US\$60m, approved in October 2020)
- **Kosovo** Digital Economy (US\$25m, approved in July 2018)
- **Nigeria** Digital Identification for Development Project (US\$430m, approved in February 2020)
- **Digital Marshall Islands** Project (US\$30m, approved in August 2021)
- **Federated States of Micronesia** Connectivity Project (US\$30.8m, approved in March 2020)
- **Mozambique** Digital Acceleration Project (US\$200m, approved in July 2022)
- **Niger** Smart Villages Project (US\$100m, approved in July 2021)
- **Scaled-up Somalia** (US\$68m in two phases, approved in March 2019 and June 2020)
- **Tuvalu** Telecoms and ICT Development Project (US\$29m, approved in January 2019)
- **Digital West Bank and Gaza Project** (US\$20m, approved in March 2021)

Pipeline projects

- **DR Congo** Digital Foundations (US\$400m, for approval in FY24)
- **Ethiopia** Digital ID for Inclusion and Services (US\$300m, for approval in FY24)
- **Mali** Digital Transformation Program (US\$100m, for approval in FY23)
- East African Regional Digital Integration Program (covering **Ethiopia, Somalia and South Sudan**) (US\$172m, for approval in FY23)
- West African Regional Digital Integration Program (covering, inter alia, **Guinea Bissau**) (US\$138m, for approval in FY23).

The World Bank's digital investments have generally followed a three-stage template.

- **Digital Foundations projects.** These are intended for countries just embarking on the first steps of their digital journey, as is typically the case in most FCV countries. For these countries, the digital offer would be focused on the first pillar – broadband connectivity access and use – with some of the second pillar too – Digital Data Infrastructure.
- **Digital Acceleration projects.** These projects are designed for countries a little further along their digital journey, with higher rates of adoption, and a more stable liberalized market environment, or where the project is following on from an earlier project focused on the infrastructure and market structure fundamentals. As well as the first two pillars, these projects would typically focus additionally on fostering digital jobs and entrepreneurship and fostering the trust environment (data protection and cybersecurity), and digital platforms (such as Digital ID).
- **Digital Transformation projects.** Though fewer in number (mainly because upper middle income and high income countries don't often need to borrow), these projects would include all elements in the digital offer, but particularly focused on transformation in particular sectors, such as education, healthcare or social protection.

A good example of a recent lending project designed for an FCV country would be the **Ethiopia Digital Foundations** program (P171034), a US\$200m investment project finance (IPF) approved in April 2021, and currently under implementation to 2026. The project has five components:

1. **Digital economy, enabling legal and regulatory environment (US\$20m).** This is intended to put a competitive market structure in place, with the licensing of the Safaricom Ethiopia consortium as a new market entrant, supporting the partial privatization of Ethio Telecom, the incumbent, and strengthening regulatory authority, the Ethiopian Communications Authority (ECA). Also under this sub-component is a pilot implementation of Ethiopia's Digital ID program. Subsequently, the Government of Ethiopia has requested support for a full implementation of Digital ID under a standalone project.
2. **Digital government and connectivity (US\$133m).** The biggest component in the project, the aim is to develop the capacity of the Government to deliver digital services, and to crowd-in private sector investments to improve regional and domestic connectivity infrastructure, to connect public institutions and educational institutions to broadband internet. It will build upon the market opening measures supported in component 1 to stimulate private-sector-led investment to expand the geographic coverage of broadband networks, to better serve government institutions, businesses and citizens across the country.
3. **Digital business and entrepreneurship (US\$40m).** This component aims to nurture digital entrepreneurship and incentivize digital businesses to train, provide digital devices, and employ Ethiopians to participate in the digital economy, and thereby to generate income and jobs. It includes a technical assistance sub-component to the Ministry of Innovation and Technology for digital market regulations and implementation.
4. **Project management (US\$7m).** This is a standard component in all Bank projects and supports the operation of a project implementation unit.
5. **Contingent emergency response component (US\$0).** This has become a recommended element in all World Bank programs, since the COVID-19 epidemic, and allows projects to be quickly adapted and financed to respond to emerging crises. As such, it is particularly appropriate for FCV countries.

Although Digital Ethiopia is a standalone digital development project, an increasingly common scenario is for the World Bank's "digital offer" to be embedded in projects from other sector. A few recent examples include:

- In **Sudan**, an alert system, financed by the World Bank and implemented by the Social Protection and Justice (SPJ) Global Practice, seeks to match nomadic herders with water sources and allow owners of water sources to prepare for and 'market' water to nomadic herders. This helps mitigate the potential for conflict between the two communities;
- In **Pakistan**, a team from Social Sustainability and Inclusion (SSI) used Big Data from social media to understand social and political dynamics in former Federally Administered tribal areas of the country and support a better understanding of what was expected from the state in these areas – thus potentially supporting improvements in the social contract;
- Linked to the social contract – Africa's Voices³⁴ is also a good example of use of mobile phone outreach to communities who would otherwise not be reached in FCV contexts. Similar mobile phone based citizens engagement have been used in many FCV countries and the Bank has used this type of platform for M&E in northern **Mali**, and for school attendance monitoring in **DR Congo**, for example;

- In **Somalia**, the telecom story is already outlined in the report, but it is worth highlighting the importance of the World Bank's support to the ICT sector as being an important state-building engagement – bringing a previously unregulated sector into dialogue with the Government in a way which not only increased the credibility of the state system (as an alternative to conflict) but also improved the potential to i) increase or social protection revenue; and ii) bring potentially illicit fund flows into formal financial systems;
- ICTs can also help to address the trust deficit in FCVs. There are many different examples of how eGovernance, and in particular eProcurement, can bring greater credibility and trust in low trust environments. An example would be the introduction of eProcurement in Aceh, a fragile region of **Indonesia**, during post-tsunami reconstruction. This was a post-civil war context where trust in the state was very low. The eProcurement technology resulted in greater public confidence in the Government's reconstruction efforts and also a reduction in the cost of goods and services being procured. This latter point was due to the transparency of the system by not allowing/ requiring bids that were "enhanced" in price;
- Relatively simple digital solutions for FCV countries can often yield the best results – for example, the Mogadishu city government in **Somalia** increased revenue collection by digitizing licensing for small public vehicles which were registered using a bar code.

34 <https://www.africasvoices.org/>.



Country

Case **Studies**

2

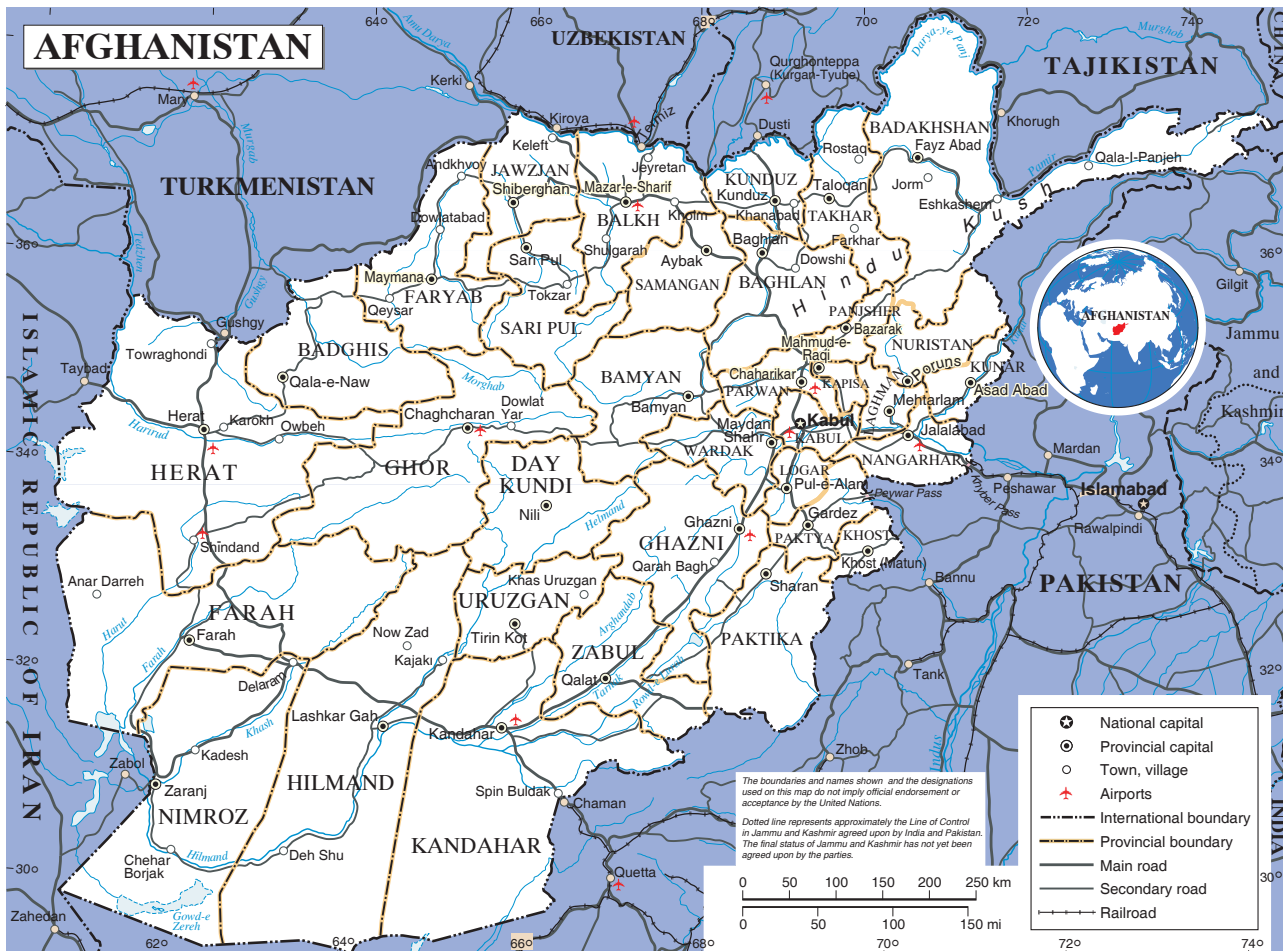
The Republic of Afghanistan

This component of the study assesses the impact on the mobile market in Afghanistan of the conflict associated with the invasion by Nato-led forces in 2001³⁵ and continuing through the end of 2020, when the US-led military presence and internal conflict between the Taliban and the officially recognized Afghan government were still ongoing. Events occurring in 2021, including the collapse of the Afghan government to the Taliban and the subsequent full withdraw of US-led forces, are not considered here as they fall outside the period under consideration.

2.1 Afghan context

The following passages provide information on Afghanistan's geography, demographics, and economy; the conflict; and the telecom sector.

Map 1: Afghanistan



Source: UN Geospatial > Afghanistan (June 1, 2011), <https://www.un.org/geospatial/content/afghanistan>.

35 https://www.nato.int/cps/en/natohq/topics_8189.htm

Afghanistan's geography, demographics, and economy

Afghanistan is located in South Asia, northwest of Pakistan and east of the Islamic Republic of Iran (map 1). It is also bordered by Turkmenistan to the northwest, Uzbekistan to the central north, Tajikistan to the northeast, and China to the extreme northeast along a short 91-kilometer (km) boundary. Afghanistan is a landlocked country.

Afghanistan has a population of about 39 million³⁶ and a land area of 652,860 square km (about 252,071 square miles).³⁷ The country's population has clusters in the foothills and periphery of the rugged Hindu Kush range, and smaller groups are found in many of the country's interior valleys. Generally, the east is more densely settled, and the south is sparsely populated. About 26 percent of the population lives in urban areas.³⁸ Kabul, the capital, has a population of about 4.3 million.³⁹ Life expectancy at birth was 64.8 years in 2019.⁴⁰

The terrain is mostly rugged mountains, with plains in the north and southwest. The Hindu Kush mountain range, which runs northeast to southwest, divides the northern provinces from the rest of the country. The highest peaks are in the northern Wakhan in the Wakhan Corridor. About 46 percent of the land area is used as permanent pasture and 12 percent is arable land used for farming. Afghanistan has an arid continental climate with considerable temperature and precipitation variation between seasons. Temperatures also vary greatly by altitude, with mountainous regions experiencing temperatures well below freezing on an annual basis, yet the southern arid regions regularly experience temperatures over 35°C. Precipitation varies widely with topography – the southwestern arid region typically experiences little precipitation and the northeastern mountain range experiences heavy precipitation.⁴¹

Gross domestic product (GDP) per capita, based on purchasing power parity, was nearly USD 2,088 in 2020.⁴² GDP composition by sector of origin in 2016, excluding opium, was 23.0 percent agriculture, 21.1 percent industry, and 55.9 percent services.⁴³ Afghanistan's primary natural resources are natural gas, petroleum, coal, copper, chromite, talc, barites, sulfur, lead, zinc, iron ore, salt, precious and semiprecious stones, and arable land.

Its primary commodity exports in 2019 were gold, grapes, opium, fruits and nuts, insect resins, cotton, handwoven carpets, soapstone, and scrap metal. The labor force in 2020 was almost 10.7 million.⁴⁴ Unemployment was 11.7 percent in 2020.⁴⁵ In 2016, over half the population lived below the poverty line. In 2019, access to electricity (including on-grid and off-grid supplies) was 97.7 percent,⁴⁶ 53 percent had access to sanitary facilities, and 70 percent had access to treated drinking water. The adult literacy rate was 43 percent in 2018, including 55.5 percent of males and 29.8 percent of females.⁴⁷

The conflict in Afghanistan

As of this report's publication, the Taliban has regained control over Afghanistan. However, this component of the study assesses the impact of conflict on the mobile market in Afghanistan from 2001 through 2020 only, which continued for most of the 21-year period covered by this study. The inception of the conflict being studied was marked by the October 7, 2001, invasion and subsequent occupation of Afghanistan by a US-led coalition after the Taliban refused to turn over Osama bin Laden following the terrorist attacks on the World Trade Center on September 11, 2001.

The 2001 invasion was only the most recent of an ongoing cycle of war in Afghanistan. Before the inception of the US-Afghan-Taliban conflict in 2001, Afghanistan had been through continuous conflict and civil war for over 20 years, tracing back to the 1973 coup that ended the country's post-colonial monarchy.

The US-led coalition's military intervention in Afghanistan targeted the Taliban and al-Qaeda. The Taliban was removed from power in December 2001 and an interim Afghan government was formed, with extensive international experience, under Hamid Karzai. At the time, he was an influential former deputy foreign minister, head of the Popalzai tribe, and had led tribes around Kandahar against the Taliban. Karzai became a key political figure after the removal of the Taliban regime in late 2001.⁴⁸

36 World Bank > DataBank > World Development Indicators > Afghanistan (2020), <https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on>.

37 World Bank > Data > Land Area > Afghanistan (2020), <https://data.worldbank.org/indicator/AG.LND.TOTL.K2?locations=AF>.

38 World Bank > DataBank > Health Nutrition and Population Statistics > Afghanistan (2020), <https://databank.worldbank.org/source/health-nutrition-and-population-statistics/Type/TABLE/>.

39 World Population Review > World Cities > Kabul Population (2020, 2021), <https://worldpopulationreview.com/world-cities/kabul-population>.

40 World Bank > DataBank > World Development Indicators > Afghanistan (2020).

41 World Bank Group > Climate Change Knowledge Portal > Country > Afghanistan > Current Climate > Climatology 1991–2020 (2021), <https://climate-knowledgeportal.worldbank.org/country/afghanistan/climate-data-historical>.

42 World Bank > DataBank > World Development Indicators > Afghanistan (2020).

43 IndexMundi > Afghanistan GDP composition by sector (2021), https://www.indexmundi.com/afghanistan/gdp_composition_by_sector.html.

44 World Bank > DataBank > Health Nutrition and Population Statistics > Afghanistan (2020).

45 World Bank > DataBank > Health Nutrition and Population Statistics > Afghanistan (2020).

46 World Bank > DataBank > World Development Indicators > Afghanistan (2019).

47 World Bank > DataBank > Health Nutrition and Population Statistics > Afghanistan (2020).

48 "Hamid Karzai," Britannica (2021), <https://www.britannica.com/biography/Hamid-Karzai>.

Afghanistan adopted a Constitution in 2004. Karzai was elected president soon thereafter and again in 2009. The first peaceful transfer of power in the officially recognized government occurred in 2014, when Ashraf Ghani was elected president to succeed Karzai. The US-led coalition formally ended its combat mission in 2014, and the Afghan National Defense and Security Forces assumed responsibility for the country's security.⁴⁹ From 2014 through 2020, the international coalition focused its efforts on anti-insurgency operations against the Taliban, al-Qaeda, and the Islamic State of Khorasan, while supporting the development of the officially recognized government. The war remained largely a stalemate for nearly six years, despite a small increase in US troops in 2017, continuing combat missions, and a shift in US military strategy to target Taliban revenue sources, which involved air strikes against drug labs and opium production sites.⁵⁰

Following their removal from power in Kabul, Taliban leaders continued to operate from remote locations in Pakistan, often employing paid foot soldiers in Afghanistan, and waged guerilla warfare against the internationally recognized government and coalition troops. By 2019, almost half the districts in Afghanistan were not fully under the control of the official government, with 33.9 percent contested and 12.3 percent under direct Taliban control. The United States and the Taliban signed a peace agreement on February 29, 2020, setting a timeline for withdrawal of US troops and a pledge by the Taliban to prevent terrorism – but the violence continued.⁵¹ Afghanistan's 2020 elections for the officially recognized government were disputed, and this led to competing inaugural ceremonies.⁵²

Just as the United States and its allies were completing their withdrawal of all non-Afghan forces from Afghanistan,⁵³ the Taliban retook control of the country in mid-August 2021, entering Kabul to find that Afghanistan's elected president and internationally recognized leader, Ashraf Ghani, had fled the country as they approached.⁵⁴ These post-2020 events are not reflected in the following analysis of this report.

Afghanistan's telecom sector

As a result of near continuous conflict since 1978 and repressive Taliban rule since 1996, Afghanistan had little telecom infrastructure at the time of the 2001 Nato-led invasion.

Telecommunications had first been introduced in Afghanistan in 1908 and had achieved slow but steady progress until the 1978 Soviet invasion. In 2001, the responsible government ministry, the Ministry of Communications and Information Technology (MCIT), had been in existence since 1955, when it was then the Ministry of Communications. The ministry operated a small wireline telephone network, built by the Soviets during their occupation, which sustained heavy damage during the 2001 Nato-led invasion.⁵⁵

Afghanistan also had one mobile network by 2001. Afghan Wireless Communication Company offered mobile voice service in Kabul and Kandahar, the Taliban's political base in the south. Afghan Wireless had been established in 1998 as a joint venture between the Ministry of Communications, controlled by the Taliban, and Telephone Systems International from the United States. The US company was led by Eshan Bayat, an Afghan-American entrepreneur with backing from British, Swedish, and US investors. It was forced to exit the venture in 1999 after the US government prohibited US companies from doing business in Afghanistan. Following the US invasion in 2001, Afghan Wireless, then controlled by Taliban-linked officials in Kabul, continued to provide local, long-distance, and international calling services because its network continued to function "relatively well" following the initial invasion.⁵⁶

49 "Global Conflict Tracker: War in Afghanistan" (Council on Foreign Relations, New York, last updated October 15, 2021), <https://microsites-live-backend.cfr.org/global-conflict-tracker/conflict/war-afghanistan>.

50 See Council on Foreign Relations > Timeline > The U.S. War in Afghanistan (2021), <https://www.cfr.org/timeline/us-war-afghanistan>.

51 "Global Conflict Tracker: War in Afghanistan" (Council on Foreign Relations, New York, last updated October 15, 2021), <https://microsites-live-backend.cfr.org/global-conflict-tracker/conflict/war-afghanistan>.

52 Mujib Mashal, "Ghani Takes the Oath of Afghan President. His Rival Does, Too," *The New York Times* (March 9, 2020), <https://www.nytimes.com/2020/03/09/world/asia/afghanistan-president-inauguration-ghani-abdullah-.html>.

53 See, for example, Phil Stewart and Idrees Ali, "Last U.S. Troops Depart Afghanistan after Massive Airlift Ending America's Longest War," *Reuters* (August 30, 2021), <https://www.reuters.com/world/last-us-forces-leave-afghanistan-after-nearly-20-years-2021-08-30/>.

54 See, for example, Joseph Krauss, "Taliban Take Over Afghanistan: What We Know and What's Next," *AP News* (August 17, 2021), <https://apnews.com/article/taliban-takeover-afghanistan-what-to-know-1a74c9cd866866f196c478aba21b60b6>.

55 See Simon Romero, "A Nation Challenged: The Communications; Afghan Phone Links Are an American Legacy," *The New York Times* (November 12, 2001), <https://www.nytimes.com/2001/11/12/business/a-nation-challenged-the-communications-afghan-phone-links-are-an-american-legacy.html>.

56 See Simon Romero, "A Nation Challenged: The Communications; Afghan Phone Links Are an American Legacy," *The New York Times* (November 12, 2001), <https://www.nytimes.com/2001/11/12/business/a-nation-challenged-the-communications-afghan-phone-links-are-an-american-legacy.html>.

Shortly after the US-led coalition had gained control of Afghanistan, the international community undertook reconstruction of the country's physical and social infrastructure. Beginning in 2002, the international community established a steering committee of donor nations co-chaired by the United States, Japan, Saudi Arabia, and the European Union to ensure coordination of donor assistance and provide strategic support for redevelopment.⁵⁷

The effort implemented "best economic development practices" through a private sector-led approach with technical and financial support from international donors.⁵⁸ After removing the Taliban from power in 2001, the US government lifted the prohibition on participation by US-based Telephone Systems International in Afghan Wireless.⁵⁹ In April 2002, Afghan Wireless received an interim authorization to provide Global System for Mobile Communications (GSM) service in Afghanistan.⁶⁰ A longer term GSM license was issued to Afghan Wireless in 2003 on payment of a USD 5 million license fee.⁶¹ Also in 2003, Telecommunication Development Company of Afghanistan (operating as Roshan) was awarded the second GSM license.⁶² Afghan Telecom, established in September 2005 through a presidential decree as a wholly state-owned enterprise, deployed a Code Division Multiple Access (CDMA) mobile network in 2006. Also in 2006, two additional mobile licenses were issued, one to Etisalat and the other to Investcom (operating as Areeba), which was later acquired by MTN. A sixth mobile operator, Wasel Telecom, was licensed in 2006 to operate a CDMA network in 22 districts in northern Afghanistan and its licensed territory was extended to the entirety of Afghanistan in 2014.⁶³

The government established Afghan Telecom with an initial capital contribution of USD 2 million and invested another USD 250 million by 2012. When it was formed in 2005, Afghan Telecom inherited all the state-owned telecom infrastructure and services, including public projects such as the government's communication network, the district communication network, and the village communication network. It also provided commercial fixed and mobile (CDMA) services and operated the only nationwide fiber optic backbone. According to its bylaws, Afghan Telecom was authorized to provide unified telecom services throughout the country and cross-border transit telecom services outside Afghanistan. Registered as a business entity with the Afghanistan Investment Support Agency, it was also expected to operate based on open market principles and was subject to the same rules and regulations as privately owned telecom operators.⁶⁴ Efforts in 2008 to privatize state-owned Afghan Telecom, the incumbent fixed line operator and beneficiary of state investments in a national wholesale fiber network, proved unsuccessful. In 2013, Afghan Telecom (operating as Salaam Telecom) was issued a 3G spectrum license, and in February 2014, it launched 3G service.⁶⁵

In late 2010, the Afghanistan Telecom Regulatory Authority (ATRA) began assessing appropriate spectrum license fees for the noncompetitive award of five 3G licenses to incumbent mobile operators and market readiness for competitive introduction of two new 3G entrants. Each spectrum license (for both incumbents and new entrants) would assign 2×10 megahertz (MHz) in the 2.1 gigahertz band.⁶⁶ Afghan Telecom was automatically awarded its 3G spectrum license due to its status as a unified licensee. In March 2011, Etisalat announced plans to invest USD 100 million during 2012 and 2013 in a 3G network that would be launched in late 2012.⁶⁷ Roshan also announced in April 2011 that it was planning to invest USD 100 million for the introduction of 3G in late 2011 or early 2012.⁶⁸

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- 57 See Ron van Rooden, "Overview," in *Reconstructing Afghanistan*, edited by Adam Bennett (International Monetary Fund, Washington, DC, 2005), 1–2, <https://www.imf.org/external/pubs/ntf/2005/AFG/ENG/REAF.pdf>.
- 58 See Ron van Rooden, "Overview," in *Reconstructing Afghanistan*, edited by Adam Bennett (International Monetary Fund, Washington, DC, 2005), 3–5, <https://www.imf.org/external/pubs/ntf/2005/AFG/ENG/REAF.pdf>.
- 59 By 2012, Telephone Systems International reportedly held an 80 percent interest in Afghan Wireless. See Jalal Shams, "First Ever Spectrum Auction in the History of Afghanistan," *Kabul Times* (July 12, 2021), <https://thekabultimes.gov.af/first-ever-spectrum-auction-in-the-history-of-afghanistan/>. See also Javid Hamdard *The State of Telecommunications and Internet in Afghanistan – Six Years Later 2006-2012* (US Agency for International Development, Washington, DC, 2012), 13, <https://reliefweb.int/report/afghanistan/state-telecommunications-and-internet-afghanistan-six-years-later-2006-2012>.
- 60 See Caio Castro, "Afghan Telecom Sector a Big Question Mark after Taliban Take-Over," *6GWorld* (September 6, 2021), <https://www.6gworld.com/exclusives/afghan-telecom-sector-a-big-question-mark-after-taliban-take-over/>.
- 61 See Caio Castro, "Afghan Telecom Sector a Big Question Mark after Taliban Take-Over," *6GWorld* (September 6, 2021), <https://www.6gworld.com/exclusives/afghan-telecom-sector-a-big-question-mark-after-taliban-take-over/>.
- 62 See Caio Castro, "Afghan Telecom Sector a Big Question Mark after Taliban Take-Over," *6GWorld*, *6GWorld* (September 6, 2021), <https://www.6gworld.com/exclusives/afghan-telecom-sector-a-big-question-mark-after-taliban-take-over/>.
- 63 See Jalal Shams, "First Ever Spectrum Auction in the History of Afghanistan," *Kabul Times* (July 12, 2021), <https://thekabultimes.gov.af/first-ever-spectrum-auction-in-the-history-of-afghanistan/>.
- 64 See Javid Hamdard, *The State of Telecommunications and Internet in Afghanistan – Six Years Later 2006-2012* (US Agency for International Development, Washington, DC, 2012), 12–13, <https://reliefweb.int/report/afghanistan/state-telecommunications-and-internet-afghanistan-six-years-later-2006-2012>.
- 65 See Salaam > Home > About Us > Introduction (2021), <https://www.salaam.af/en/about/first/first>. See also Halberd Bastion Pty Ltd > Home > Intelligence > Mobile Networks > Salaam (2021), <https://halberdbastion.com/intelligence/mobile-networks/salaam>.
- 66 See "ATRA Calls for Consultant to Assist with 3G & 4G Spectrum Valuation," *CommsUpdate* (TeleGeography, Washington, DC, November 15, 2010), <https://www.commsupdate.com/articles/2010/11/15/atra-calls-for-consultant-to-assist-with-3g-4g-spectrum-valuation/>.
- 67 See "Etisalat to Invest USD100 Million in Afghan Arm," *CommsUpdate* (TeleGeography, Washington, DC, March 14, 2011), <https://www.commsupdate.com/articles/2011/03/14/etisalat-to-invest-usd100-million-in-afghan-arm/>.
- 68 See "Roshan Plans for 3G Intro," *CommsUpdate* (April 27, 2011), <https://www.commsupdate.com/articles/2011/04/27/roshan-plans-for-3g-intro/>.

In July 2011, ATRA launched a tender for potential new entrants into the 3G market and notified the incumbent mobile operators that they could acquire 3G spectrum at the auction reserve price of USD 25 million.⁶⁹ None of the three potential new entrants submitted a qualifying technical bid.⁷⁰ Multiple incumbents proceeded with 3G investments under this program:

- Etisalat launched 3G service in March 2012.⁷¹ Etisalat began upgrading to offer 3.75G service over its new spectrum in August 2012.⁷² In February 2013, Etisalat announced that it had successfully completed a 4G trial using its licensed spectrum that would support transmissions of up to 100 megabits/second,⁷³ only to be quickly reprimanded by MCIT and ATRA, who denied granting Etisalat a 4G license, trial permissions, or rights to use spectrum resources for 4G services.⁷⁴
- MTN secured a 3G spectrum license in June 2012 and planned to launch service.⁷⁵
- Roshan closed on its 3G spectrum license in September 2012⁷⁶ and launched 3G service in April 2013.⁷⁷
- In November 2012, MCIT announced that it was investing USD 100 million over the next two years in 2G and 3G deployment by Afghan Telecom, which then operated a CDMA network that had been losing customers to other mobile networks.⁷⁸ Afghan Telecom launched its 2G and 3G services under the Salaam brand in February 2014.⁷⁹

- Afghan Wireless finally closed on its 3G spectrum license in March 2014.⁸⁰

Soon after awarding all the 3G spectrum licenses, in May 2014, MCIT announced that the introduction of 4G was coming in the near future.⁸¹ Some three years later, in February 2017, MCIT announced that it would publish the government's 4G policy shortly and asked interested parties to contact ATRA regarding the potential introduction of 4G services.⁸² Afghan Wireless launched 4G service in May 2017.⁸³ In October 2018, MCIT announced a consultation on the licensing process for additional 4G spectrum.⁸⁴ Etisalat launched 4G service in February 2019.⁸⁵ In September 2019, state-owned Salaam (Afghan Telecom) announced plans to launch 4G service in early 2020,⁸⁶ and it proceeded to launch the service in April 2020. At that time, neither MTN nor Roshan had yet launched 4G service.⁸⁷

69 See "Etisalat Launches 3G Network in Afghanistan," CommsUpdate (TeleGeography, Washington, DC, March 19, 2012), <https://www.commsupdate.com/articles/2012/03/19/etisalat-launches-3g-network-in-afghanistan/>. See also Javid Hamdard, *The State of Telecommunications and Internet in Afghanistan – Six Years Later 2006-2012* (US Agency for International Development, Washington, DC, 2012), 43, <https://reliefweb.int/report/afghanistan/state-telecommunications-and-internet-afghanistan-six-years-later-2006-2012>.

70 See also Javid Hamdard, *The State of Telecommunications and Internet in Afghanistan – Six Years Later 2006-2012* (US Agency for International Development, Washington, DC, 2012), 43, <https://reliefweb.int/report/afghanistan/state-telecommunications-and-internet-afghanistan-six-years-later-2006-2012>.

71 See "Etisalat Launches 3G Network in Afghanistan," CommsUpdate (TeleGeography, Washington, DC, March 19, 2012), <https://www.commsupdate.com/articles/2012/03/19/etisalat-launches-3g-network-in-afghanistan/>.

72 See "Etisalat Launches '3.75G' in Herat," CommsUpdate (TeleGeography, Washington, DC, August 4, 2012), <https://www.commsupdate.com/articles/2012/08/14/etisalat-launches-3-75g-in-herat/>.

73 See "Etisalat Bags Another First with LTE Trial," CommsUpdate (TeleGeography, Washington, DC, February 20, 2013), <https://www.commsupdate.com/articles/2013/02/20/etisalat-bags-another-first-with-lte-trial/>.

74 See "ATRA Challenges Etisalat's 'Misleading' 4G Announcement," CommsUpdate (TeleGeography, Washington, DC, February 20, 2013), <https://www.commsupdate.com/articles/2013/02/22/atra-challenges-etisalats-misleading-4g-announcement/>.

75 See "MTN Bags Second Afghan 3G Licence," CommsUpdate (TeleGeography, Washington, DC, June 21, 2012), <https://www.commsupdate.com/articles/2012/06/21/mtn-bags-second-afghan-3g-licence/>.

76 See "Roshan Bags Third 3G Licence," CommsUpdate (TeleGeography, Washington, DC, September 24, 2012), <https://www.commsupdate.com/articles/2012/09/24/roshan-bags-third-3g-licence/>.

77 See "Roshan Wades into 3G Market," CommsUpdate (TeleGeography, Washington, DC, April 16, 2013), <https://www.commsupdate.com/articles/2013/04/16/roshan-wades-into-3g-market/>.

78 See "Incumbent Inks USD32m GSM/3G Rollout Deal with ZTE," CommsUpdate (TeleGeography, Washington, DC, November 22, 2012), <https://www.commsupdate.com/articles/2012/11/22/incumbent-inks-usd32m-gsm3g-rollout-deal-with-zte/>.

79 See "Aftel Launches GSM, 3G Services," CommsUpdate (TeleGeography, Washington, DC, February 10, 2014), <https://www.commsupdate.com/articles/2014/02/10/aftel-launches-gsm-3g-services/>.

80 See "MCIT Awards Final 3G Licence," CommsUpdate (March 20, 2014), <https://www.commsupdate.com/articles/2014/03/20/mcit-awards-final-3g-licence/>.

81 See "4G on the Horizon for Afghanistan," CommsUpdate (TeleGeography, Washington, DC, May 21, 2014), <https://www.commsupdate.com/articles/2014/05/21/4g-on-the-horizon-for-afghanistan/>.

82 See "MCIT Paves the Way for 4G Launch," CommsUpdate (TeleGeography, Washington, DC, February 23, 2017), <https://www.commsupdate.com/articles/2017/02/23/mcit-paves-the-way-for-4g-launch/>.

83 See "AWCC Rolls Out LTE to Herat and Baghlan," CommsUpdate (TeleGeography, Washington, DC, December 6, 2017), <https://www.commsupdate.com/articles/2017/12/06/awcc-rolls-out-lte-to-herat-and-baghlan/>.

84 See "ATRA Begins Consultation on 4G Spectrum and Allocation Process," CommsUpdate (TeleGeography, Washington, DC, October 12, 2018), <https://www.commsupdate.com/articles/2018/10/12/atra-begins-consultation-on-4g-spectrum-and-allocation-process/>.

85 See "Salaam Launches 4G in Kabul," CommsUpdate (TeleGeography, Washington, DC, April 16, 2020), <https://www.commsupdate.com/articles/2020/04/16/salaam-launches-4g-in-kabul/>.

86 See "Aftel Plots 4G Launch by Year-End," CommsUpdate (TeleGeography, Washington, DC, September 26, 2019), <https://www.commsupdate.com/articles/2019/09/26/aftel-plots-4g-launch-by-year-end/>.

87 See "Salaam Launches 4G in Kabul," CommsUpdate, (TeleGeography, Washington, DC, April 16, 2020), <https://www.commsupdate.com/articles/2020/04/16/salaam-launches-4g-in-kabul/>.

In May 2021, ATRA announced the auctioning of additional 15-year licenses to 4G spectrum in the 1800 MHz, 2100 MHz, and 2600 MHz bands. The regulator ATRA has set reserve prices of USD 17.2 million for each 1800 MHz lot (2 x 5 MHz), USD 12.0 million for each 2100 MHz lot (2 x 5 MHz), and USD 11.0 million for each 2600 MHz lot (2x10 MHz) with no bidder permitted to acquire more than 2x10 MHz in the lower two bands or more than 2 x 20 MHz across all three bands. ATRA also said that after completion of the new spectrum licensing process, it would invite mobile network operators to propose plans jointly to consolidate their holdings into contiguous blocks.⁸⁸ In the auction, held in July 2021, there were no bidders for most of the additional spectrum. State-owned Salaam (Afghan Telecom) was the only bidder, agreeing to pay the minimum price of USD 17.2 million for one 1800 MHz lot.⁸⁹

The evolution of subscriber shares across Afghanistan's mobile operators suggests the existence of effective competition in the market. By January 2012, the subscriber shares of the six mobile operators were 32 percent for Roshan, 26 percent for MTN, 20 percent for Etisalat, 20 percent for Afghan Wireless, 2 percent for Afghan Telecom, and 0 percent for Wasel Telecom.⁹⁰ Five operators built 3G networks that covered at least 30 of Afghanistan's 34 provinces. CDMA operator Wasel Telecom, which also operated a fixed wireless internet service provider business, was struggling in the market and its owners were authorized in October 2018 by the High Economic Council to sell Wasel to United Arab Emirates-based Alokozay Group for USD 300 million.⁹¹ By 2020, the mobile subscriber shares had evolved to 27.7 percent for Roshan, 27.7 percent for MTN, 21.3 percent for Afghan Wireless, 14.9 percent for Etisalat, and 8.5 percent for Salaam (Afghan Telecom).⁹²

The fourth and fifth place operators, Etisalat and Salaam, also had infrastructure sharing arrangements in place.⁹³ As mobile rollouts proceeded, at the end of 2006, the Afghan government awarded China's ZTE Corp a USD 64.5 million contract to build a 3,200 km national fiber optic network for state-owned Afghan Telecom along the national ring road to connect Afghanistan's major population centers (Kabul to Ghazni to Kandahar to Herat to Mazar to Samangan to Baghlan to Kabul) and connect with Pakistan, Tajikistan, Uzbekistan, Turkmenistan, and the Islamic Republic of Iran.⁹⁴ Mobile operator Roshan signed up to use the fiber network in July 2009.⁹⁵ The original fiber project was delayed due to security and other challenges, and by 2012, it had reached only 12 of the 34 provinces and parts of five additional provinces.⁹⁶ That same year, the MCIT issued an Open Access Policy governing retail operator nondiscriminatory, cost-based access to the wholesale fiber network.⁹⁷ By 2016, mobile operators had invested more than USD 2 billion in their networks, which at the time relied primarily on microwave and satellite for backhaul, and they increasingly required fiber links to support the shift from mobile voice to mobile broadband.⁹⁸

In 2011, the World Bank agreed to provide an additional USD 50 million in grant funding to the Afghan government for telecom sector development, including USD 30 million to extend the scope of the national fiber network about 1,000 km to the central, northeast, and southern provinces and related technical assistance.⁹⁹ As a key part of its technical assistance, the World Bank supported an improved Open Access Policy, adopted on October 1, 2016, which, among other reforms, sought to improve access to the national fiber network (including the reasonableness of charges)

88 See "ATRA Issues Notice for 4G Auction," CommsUpdate (TeleGeography, Washington, DC, May 10, 2021), <https://www.commsupdate.com/articles/2021/05/10/atra-issues-notice-for-4g-auction/>.

89 See "ATRA Awards AfTel Spectrum Following Nation's First Auction," CommsUpdate (TeleGeography, Washington, DC, July 14, 2021), <https://www.commsupdate.com/articles/2021/07/14/atra-awards-af-tel-spectrum-following-nations-first-auction/>.

90 See Javid Hamdard, *The State of Telecommunications and Internet in Afghanistan – Six Years Later 2006-2012* (US Agency for International Development, Washington, DC, 2012), 17, <https://reliefweb.int/report/afghanistan/state-telecommunications-and-internet-afghanistan-six-years-later-2006-2012>.

91 See Afghan Ministry of Communications and Information Technology, "Alokozay [sic] Private Companies (Alokozay [sic] Group) Purchase Wasel-Telecom to Invest \$300 Million in Information Communication Technology (ICT) Sector," press release (October 2018), <https://mcit.gov.af/sites/default/files/2018-10/Press%20Release%20on%20Wasel-Telecom-English.pdf>. See also UNCTAD (United Nations Conference on Trade and Development), *Afghanistan: Rapid eTrade Readiness Assessment* (UNCTAD, Geneva, 2019), 16, box 2, https://unctad.org/system/files/official-document/dt1stict2019d5_en.pdf.

92 See "Afghanistan Has a Healthy Mobile Ecosystem but No Plans for 5G Yet," Operator Watch Blog (September 21, 2020), <https://www.operatorwatch.com/2020/09/afghanistan.html>. The total is 100.1 percent due to rounding.

93 See "AfTel Sharing Etisalat Network," CommsUpdate (TeleGeography, Washington, DC, September 28, 2018), <https://www.commsupdate.com/articles/2018/09/28/af-tel-sharing-etisalat-network/>. See also "Afghanistan Has a Healthy Mobile Ecosystem but No Plans for 5G Yet," Operator Watch Blog (September 21, 2020), <https://www.operatorwatch.com/2020/09/afghanistan.html>.

94 See Larry Wentz, Frank Kramer, and Stuart Starr, *Information and Communication Technologies for Reconstruction and Development: Afghanistan Challenges and Opportunities* (Center for Technology and National Security Policy, US National Defense University, Washington, DC, 2008), 23–24, https://reliefweb.int/sites/reliefweb.int/files/resources/06706DBB24EEDCF5852573EC007E7240-NDU_AfgICT_Jan2008.pdf.

95 See "Roshan Agrees to Use Capacity on AT's National Fibre-Optic Backbone," CommsUpdate (TeleGeography, Washington, DC, July 7, 2009), <https://www.commsupdate.com/articles/2009/07/07/roshan-agrees-to-use-capacity-on-ats-national-fibre-optic-backbone/>.

96 See Sriganesh Lokanathan, "ICT Sector Performance Review for Afghanistan" (LIRNEasia, Colombo, Sri Lanka, 2012), 21, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2144045.

97 See Sriganesh Lokanathan, "ICT Sector Performance Review for Afghanistan" (LIRNEasia, Colombo, Sri Lanka, 2012), 5, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2144045. A copy of the 2012 Open Access Policy is available at <https://tech.af/afghanistan-open-access-policy/>.

98 See Kristina Shevory, "Once a Bright Spot, Afghan Telecoms Face Unsustainable Losses," *The New York Times* (April 8, 2016), <https://www.nytimes.com/2016/04/09/business/international/once-a-bright-spot-afghan-telecoms-face-unsustainable-losses.html>.

99 See World Bank, "Implementation Completion and Results Report on a Grant in the Amount of SDR (X31.8) Million (US\$50 Million Equivalent) to the Islamic Republic of Afghanistan for the Afghanistan ICT Sector Development Project" (P121755), Report No. ICR00004450 (World Bank, Washington, DC, August 10, 2018), <https://documents1.worldbank.org/curated/en/334521534181268872/pdf/P121755-FINAL-ICR-10-Aug-2018-08102018.pdf>.

and authorized retail mobile to build and operate their own fiber physical infrastructure.¹⁰⁰ In March 2018, ATRA issued three national fiber network licenses to private companies, including mobile operators Afghan Wireless and Etisalat and new entrant Asia Consultancy Group. Mobile operator MTN's application for a fiber network license was denied due to apparent deficiencies, while Roshan's application was approved subject to its clearance of outstanding tax obligations.¹⁰¹ The fiber network reached 25 of the 34 provinces in 2020.¹⁰²

In September 2021, in the wake of the recent takeover by the Taliban, it was reported that MTN Group, which had announced in August 2020 its intention to exit all countries in the Middle East in which it had operations, as part of a corporate strategy, and was seeking to accelerate its plans to exit Afghanistan, where it had the largest subscriber share, at 27.6 percent.¹⁰³

2.2 Assessment of internal Afghan telecom investment climate factors

Five internal factors during the 2001–20 US-Afghan-Taliban conflict that impacted the climate for mobile market investment were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

Afghanistan: Market open to entry?

Following the 2001 invasion and occupation, the interim coalition government was quick to open the mobile market for new entry. Only four months after the initial NATO-led invasion, an interim telecom license was issued to incumbent mobile operator Afghan Wireless. The following year, in 2003, both Afghan Wireless and Roshan were issued 15-year GSM licenses. In 2005, Afghan Telecom was authorized to provide unified services and established a CDMA mobile network.

In 2006, additional mobile licenses were issued to Etisalat, Areeba (which was later acquired by MTN), and Wasel (CDMA in northern districts, extended nationwide in 2014). Although it appears that Wasel never became a viable mobile market participant, by 2016, Afghanistan enjoyed market participation by five active mobile operators.

Afghanistan was thus assigned a *favorable* score for market openness to entry.

Afghanistan: Ease of private investment?

Afghanistan successfully introduced a pro-private sector liberalized legal framework and licensed entry by six mobile operators. Reliable reports suggest that mobile operators had collectively invested more than USD 2 billion in their networks by 2016, but they were then facing declining revenues (down by some 10-25 percent) due to the departure of foreign soldiers and contractors.¹⁰⁴

Mobile operators were initially permitted to self-deploy microwave and had access to satellite for network backhaul, but fiber backhaul was initially reserved to the state monopoly over fixed services of Afghan Telecom, which committed to build a national fiber backbone network in 2006, a time when most mobile traffic was still voice and Short Message Service so that fiber backhaul was not yet necessary. Efforts to privatize Afghan Telecom in 2008 stalled, and it experienced delays in construction of the planned national fiber network, while mobile operators remained restricted from self-provisioning fiber. The government's adoption of its original Open Access Policy in 2012, concurrently with the 2012 mobile broadband spectrum licensing process,¹⁰⁵ continued Afghan Telecom's fiber monopoly while seeking to ensure nondiscriminatory, cost-based access to the national infrastructure. By April 2016, access to reliable and reasonably priced fiber backhaul had become a constraint on data traffic growth.¹⁰⁶

100 See World Bank, "Implementation Completion and Results Report on Afghanistan ICT Sector Development Project," (World Bank, Washington, DC, August 10, 2018), 12, <https://documents1.worldbank.org/curated/en/334521534181268872/pdf/P121755-FINAL-ICR-10-Aug-2018-08102018.pdf>. A copy of the updated Open Access Policy is available at <https://mcit.gov.af/sites/default/files/2021-06/Open%20Access%20Policy%20Finalized%20Version-Signed-English%281%29.pdf>.

101 See "ATRA Issues Three Fibre-Optic Network Licences," CommsUpdate (TeleGeography, Washington, DC, March 20, 2018), <https://www.commsupdate.com/articles/2018/03/20/atra-issues-three-fibre-optic-network-licences/>.

102 See "25 Provinces Connect to Fiber Optic Network," Ariana News (June 24, 2020), <https://ariananews.af/25-provinces-connect-to-fiber-optic-network/>. For further background information on the fiber network, see Special Inspector General for Afghanistan Reconstruction (SIGAR), "Afghanistan's Information and Communications Technology Sector: U.S. Agencies Obligated over \$2.6 Billion to the Sector, but the Full Scope of U.S. Efforts is Unknown," Audit Report (SIGAR, Arlington, VA, July 2016), 16–46, <https://www.hsdl.org/?view&did=811082>.

103 See "MTN Looking for Buyers for Afghan Business, Reports Say," CommsUpdate (TeleGeography, Washington, DC, September 10, 2021), <https://www.commsupdate.com/articles/2021/09/10/mtn-looking-for-buyers-for-afghan-business-reports-say/>.

104 See Kristina Shevory, "Once a Bright Spot, Afghan Telecoms Face Unsustainable Losses," The New York Times (April 8, 2016), <https://www.nytimes.com/2016/04/09/business/international/once-a-bright-spot-afghan-telecoms-face-unsustainable-losses.html>.

105 See Jalal Shams, "First Ever Spectrum Auction in the History of Afghanistan," Kabul Times (July 12, 2021), <https://thekabultimes.gov.af/first-ever-spectrum-auction-in-the-history-of-afghanistan/>.

106 See Kristina Shevory, "Once a Bright Spot, Afghan Telecoms Face Unsustainable Losses," The New York Times (April 8, 2016), <https://www.nytimes.com/2016/04/09/business/international/once-a-bright-spot-afghan-telecoms-face-unsustainable-losses.html>.

The updated Open Access Policy adopted in October 2016 addressed these issues by authorizing mobile operators to begin building their own fiber backhaul networks to support their build-out of mobile broadband¹⁰⁷ and seeking to improve the terms of access to the state-owned fiber network. In 2018, several mobile operators were also licensed to self-provide their own fiber networks.

Afghanistan was assigned a *favorable* score for ease of private investment in mobile networks, reflecting the favorable legal framework and the heavy level of actual investment. Despite initial restrictions on fiber investment by mobile operators, this does not appear to have curtailed investment or service at times when traffic was largely voice and text. As data traffic grew, the issue was ultimately addressed, first, in the 2012 policy of open access to the state-owned fiber network; second, in the 2016 removal of restrictions on private fiber infrastructure investment, which also strengthened open access to the state-owned network; and third, in authorizing mobile operators to self-provide fiber.

Afghanistan: Spectrum needs met?

Afghanistan was proactive in allocating and awarding spectrum licenses to enable efficient wireless network deployment and adoption of emerging technologies. A 2009 telecom regulatory environment study funded by the Governments of Canada and the United Kingdom found that spectrum assignments were viewed favorably by the country's four GSM operators (a fifth operator used CDMA and the sixth was not licensed until 2013).¹⁰⁸ Although ATRA had been criticized by mobile operators for not protecting against interference in assigned bands,¹⁰⁹ this did not stall their willingness to pay for additional spectrum or invest heavily in 3G and 4G network upgrades.

Despite initial delays in licensing mobile broadband spectrum,¹¹⁰ in 2012 ATRA issued all four incumbent GSM mobile operators 15-year technology-neutral 2x10 MHz spectrum licenses in the 2100 MHz band, for USD 25 million each, permitting them to deploy either 3G or 4G technology.¹¹¹ The licensees initially deployed 3G equipment, and, by 2017, began deploying 4G network upgrades.

In 2019, the government's High Economic Council approved an ATRA proposal to use competitive auctions for additional mobile broadband spectrum assignments, a policy in keeping with international best practices. The first such auction was not held until June 30, 2021,¹¹² when only state-owned mobile operator Afghan Telecom (operating as Salaam Telecom) participated.¹¹³ This was likely caused by the rapidly deteriorating investment climate due to the pending withdrawal of US-led forces and resurgence of Taliban control. Because it occurred after 2020, the outcome of the spectrum auction is not considered in this study's analysis.

Afghanistan received a *favorable* score for meeting mobile spectrum needs, notwithstanding earlier interference complaints and some delay in releasing mobile broadband spectrum, due to the overall availability of spectrum to support five mobile broadband networks and a sixth CDMA network.

107 See UNCTAD (United Nations Conference on Trade and Development), Afghanistan: Rapid eTrade Readiness Assessment (UNCTAD, Geneva, 2019), 12–13, https://unctad.org/system/files/official-document/dtlstict2019d5_en.pdf.

108 Sriganesh Lokanathan, "Telecom Regulatory and Policy Environment in Afghanistan" (LIRNEasia, Colombo, Sri Lanka, 2009), 15, <https://www.lirneasia.net/wp-content/uploads/2008/04/AfghanTREV2.pdf>.

109 See "ATRA's Inability to Provide Facilities Created Problems for Private Telecommunication Companies," Heart of Asia Daily (February 10, 2021), <https://heartofasia.af/atras-inability-to-provide-facilities-created-problems-for-private-telecommunication-companies/>. See also Sriganesh Lokanathan, "Telecom Regulatory and Policy Environment in Afghanistan" (LIRNEasia Colombo, Sri Lanka, 2009), 15, <https://www.lirneasia.net/wp-content/uploads/2008/04/AfghanTREV2.pdf>.

110 Sriganesh Lokanathan, "Telecom Regulatory and Policy Environment in Afghanistan" (LIRNEasia, Colombo, Sri Lanka, 2009), 15, <https://www.lirneasia.net/wp-content/uploads/2008/04/AfghanTREV2.pdf>.

111 See Jalal Shams, "First Ever Spectrum Auction in the History of Afghanistan," Kabul Times (July 12, 2021), <https://thekabultimes.gov.af/first-ever-spectrum-auction-in-the-history-of-afghanistan/>. See also Javid Hamdard, The State of Telecommunications and Internet in Afghanistan – Six Years Later 2006-2012 (US Agency for International Development, Washington, DC, 2012), <https://reliefweb.int/report/afghanistan/state-telecommunications-and-internet-afghanistan-six-years-later-2006-2012>.

112 See Jalal Shams, "First Ever Spectrum Auction in the History of Afghanistan," Kabul Times (July 12, 2021), <https://thekabultimes.gov.af/first-ever-spectrum-auction-in-the-history-of-afghanistan/>.

113 Mir Haidar Shah Omid, "Govt-Owned Telecom Company Wins Spectrum Assignment Auction" (July 8, 2021), <https://tolonews.com/afghanistan-173338>.

Afghanistan: Level playing field?

The coalition government moved swiftly to ensure a level playing field for mobile operators, even before the passage of a telecom law. In 2003, the Telecommunications Regulatory Board was established to serve as an interim sector regulator until a proper legal framework could be enacted and implemented. The interim regulator issued the initial GSM licenses to Afghan Wireless and Roshan. The telecom law was passed in 2005, and in 2006 ATRA was established and assumed its role as sector regulator.

In addition to the modern legal framework setting up an independent regulator and establishing rules for fair engagement and competition among operators, external reports have found that the mobile market is a level playing field in practice. An independent 2009 study found that ATRA acted fairly notwithstanding weak institutional capacity.¹¹⁴ The international donor community has also supported capacity building of ATRA. The nascent regulator has received substantial technical assistance from the World Bank to build capacity and implement regulatory reforms.¹¹⁵

The evolution of market shares among mobile operators and the non-emergence of any operator that is clearly dominant also suggest that the market is relatively competitive. In addition, although state-owned Salaam (Afghan Telecom) competed with the other four privately owned mobile operators, its infrastructure sharing arrangement negotiated with rival Etisalat and modest market share suggest that Salaam was not afforded any anticompetitive preference by the MCIT or ATRA.

Afghanistan was assigned a *favorable* rating for its level playing field in the mobile retail market.

Afghanistan: Fiscal reasonableness?

After the fall of the Taliban in 2001, the Afghan government inherited a failed tax system. Although the existing tax law was amended in 2005, a proper fiscal system with adequate administration did not come into force until the 2009 tax law was adopted. It imposed a 20 percent corporate income tax and a 2 percent business revenue tax.¹¹⁶

Afghanistan's 2009 tax system was generally well designed as a broad-based tax system with relatively low rates, but it raised insufficient revenue for the government to be self-sustaining without donor support. The International Monetary Fund (IMF) therefore advised the government to bring domestic revenues (including tax revenues and nontax receipts) up to levels that would support self-sustaining government budgets after donor funds receded. For example, in 2011, the IMF provided technical assistance to the government in developing a plan to increase domestic revenues from 11 to 15 percent of GDP by 2016.¹¹⁷ One component of the government's effort to increase domestic revenue was the introduction of a 10 percent special levy on telecom revenues, which was approved by decree in August 2015 and took effect in September 2015 (notwithstanding being rejected in the lower house of Parliament).¹¹⁸ Imposition of this tax raised the overall mobile market fiscal burden from low to moderate compared with international norms. Even after the imposition of this telecom-specific tax, Afghanistan's fiscal burden was modest for emerging international countries.¹¹⁹ The levy netted the government USD 59.7 million in 2020.¹²⁰

114 Sriganesh Lokanathan, "Telecom Regulatory and Policy Environment in Afghanistan" (LIRNEasia, Colombo, Sri Lanka, 2009), 22, <https://www.lirneasia.net/wp-content/uploads/2008/04/AfghanTREV2.pdf>.

115 World Bank, "Emergency Project Paper on a Proposed Grant in the Amount of SDR 31.8 Million (US\$ 50 Million Equivalent) to the Islamic Republic of Afghanistan for an ICT Sector Development Project" (March 11, 2011).

116 See Special Inspector General for Afghanistan Reconstruction (SIGAR), SIGAR 20-22 Audit Report 3 (Providing SIGAR Analysis of 2009 Income Tax Law) (SIGAR, Arlington, VA, January 2020), <https://apps.dtic.mil/sti/pdfs/AD1137576.pdf>.

117 See "IMF Survey: Afghanistan to Get \$133.6 Million IMF Loan," IMF News (November 15, 2011), <https://www.imf.org/en/News/Articles/2015/09/28/04/53/socar111511a>.

118 See IMF (International Monetary Fund), "Islamic Republic of Afghanistan: Staff Report for the 2015 Article IV Consultation and the First Review under the Staff-Monitored Program" (IMF, Washington, DC, November 3, 2015), 25, 48, 64, <https://www.imf.org/external/pubs/ft/scr/2015/cr15324.pdf>. See also "Afghans Alarmed by New Telecoms Tax" (Institute for War and Peace Reporting, London, November 3, 2015), <https://iwpr.net/global-voices/afghans-alarmed-new-telecoms-tax>.

119 See Mayuran Sivakumaran, "Taxing Mobile Connectivity in Asia Pacific" (GSMA, London, 2018), 20–34, <https://www.gsma.com/publicpolicy/wp-content/uploads/2018/04/Taxing-mobile-connectivity-in-Asia-Pacific.pdf>.

120 See "Afghanistan Gets over 59 Mn U.S. Dollars in Telecom Tax Revenue," Xinhua (February 9, 2021), http://www.xinhuanet.com/english/asiapacific/2021-02/09/c_139733107.htm. See also "Gov't Collects More Than 2.2 Billion AFN from 10% Telecom Tax in Past Seven Months," Ariana News (August 1, 2020), <https://ariananews.af/govt-collects-more-than-2-2-billion-afn-from-10-telecom-tax-in-past-seven-months/>.

Two aspects of the special levy adversely impacted the sector. First, the nature of the tax distorted market performance because it affected uptake, discouraging increased mobile usage. For example, according to 2019 estimates, sector-specific, consumer-level mobile taxes in Afghanistan levied on 1 gigabyte of data usage in 2017 exceeded 13 percent of income for the bottom 20 percent of earners and 3.5 percent of average income for all earners – thereby suppressing mobile adoption and usage among lower income Afghans.¹²¹ Second, the introduction of the special levy had a dampening impact on investment by undermining fiscal predictability.

An independent review of the regulatory framework in 2009 found that operators had broadly favorable views on the level of mobile license and regulatory fees.¹²² However, during state-owned Afghan Telecom’s monopoly over fiber backhaul, which continued until late 2016, pricing of this essential wholesale service was considered excessive, having an unquantified impact on the mobile market.

Overall, Afghanistan presented a fair and reasonable fiscal framework for investment in the telecom sector. As summarized in table 4, Afghanistan was assigned an **uncertain** score for fiscal reasonableness in the mobile retail market based on the combined impact of the 10 percent surtax, the high Afghan Telecom charges for wholesale inputs, and the lack of prior consultation on the 10 percent surtax.

Table 4: Afghanistan: Fiscal reasonableness determination

AFGHANISTAN: FISCAL REASONABLENESS, 2001–20			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
20% corporate income tax 2%-4% business revenue tax	10% business revenue tax rate introduced on telecom in 2015	License and regulatory fees generally fair High state-owned enterprise wholesale charges through 2016	Generally reasonable Insufficient warning before imposing sector-specific tax
Afghanistan overall rating: Uncertain			

Source: World Bank.

Afghanistan: Summary of key findings across all the internal factors

Table 5 summarizes the scoring of the five internal factors impacting Afghanistan’s telecom investment climate. It also offers the key relevant facts that led to the score for each factor.

Table 5: Afghanistan: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Market open to entry	2	2002, interim GSM license issued to Afghan Wireless 2003 Afghan Wireless and Roshan issued GSM licenses 2006, Areeba (later MTN) and Etisalat issued GSM licenses
Ease of private investment	2	Introduction of pro-private sector liberalized legal framework 2005 Telecommunications Services Regulation Act 2012 open access to national fiber network 2016 end of SOE monopoly over fiber investment
Spectrum needs met	2	Regular spectrum releases since 2002 Broadband spectrum licenses, without technology restrictions, although delayed until 2012
Level playing field	2	Modern telecom law and independent regulator Five of six mobile licensees privately owned Reasonable balance of subscribers across multiple operators No apparent favoritism toward any operator
Fiscal reasonableness	1	Fiscal burden increased from low to moderate in 2015 Special 10% tax levy distortive and introduced without consultation
All	9	

Source: MacMillan Keck.

Note: GSM = Global System for Mobile Communications; SOE = state-owned enterprise.

121 See Xavier Pedros and Mayuran Sivakumaran, “Rethinking Mobile Taxation to Improve Connectivity” (GSMA, London, 2019), 7, 19, 22, 23, 25, 40, 41, https://www.gsma.com/publicpolicy/wp-content/uploads/2019/02/Rethinking-mobile-taxation-to-improve-connectivity_Feb19.pdf.
 122 Sriganesh Lokanathan, “Telecom Regulatory and Policy Environment in Afghanistan” (LIRNEasia, Colombo, Sri Lanka, 2009), 15, <https://www.lirneasia.net/wp-content/uploads/2008/04/AfghanTREV2.pdf>.

2.3 Assessment of external Afghan telecom investment climate factors

Five external factors during the 2001–20 conflict that impacted the climate for telecom investment were assessed: (1) military or paramilitary interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings across all the external factors.

Afghanistan: Military or paramilitary interference?

During the US-Afghan-Taliban conflict, there were no enduring foreign military blockades, but Afghanistan faced periodic restrictions on entry and the Taliban regularly disrupted telecom supply chains and targeted telecom infrastructure.

In 2012, Pakistan closed its border with Afghanistan for seven months, blocking passage of North Atlantic Treaty Organization (NATO) trucks into the country. The border closure was Pakistan's response to the killing of 24 Pakistani soldiers who were on duty at a border post. Because using alternative routes for bringing telecom equipment into the country was more costly and time-consuming, the blockade disrupted civilian supply chains during the border closure and two months after the border reopened.¹²³

As it increasingly gained control over provinces, highways, and borders, the Taliban set up roadblocks to impose unlawful import-export duties on trade in goods, typically at 2 percent of value, as a condition to allow passage.¹²⁴ The Taliban was also known to require protection money from mobile operators in exchange for not destroying their radio towers.¹²⁵ MTN has been sued in the United States by families of Taliban victims who alleged that MTN paid bribes to the Taliban to avoid having to invest in expensive security for its transmission towers.¹²⁶

Based on all these factors, Afghanistan was assigned an *uncertain* score on military interference.

Afghanistan: International sanctions?

Before the US-led intervention in Afghanistan, the UN had imposed sanctions against the Taliban-controlled Government of Afghanistan in 1999. These sanctions were aimed at members of the Taliban and included an arms embargo, asset freezes, and travel restrictions.¹²⁷ The United States had imposed even broader trading restrictions. In 1999, President Clinton imposed a trade embargo against the Taliban and the territory of Afghanistan controlled by the Taliban for allowing territory under its control in Afghanistan to be used as a safe haven and base of operations for Osama bin Laden and al-Qaeda.¹²⁸ In 2001, following the September 11 attacks on the United States, President Bush extended the scope of the trade embargo to a broader list of identified persons and entities associated with al-Qaeda.¹²⁹ These had directly impacted the ability of Telephone Systems International to fulfill its joint venture commitments to Afghan Wireless.

In July 2002, soon after the US-led removal of the Taliban from power, President Bush lifted the restrictions on US investor and vendor participation in Afghan businesses.¹³⁰ Similarly, the UN sanctions were modified to target individuals and entities known to be associated with al-Qaeda or the Taliban.¹³¹ Afghanistan was not at any time during the remainder of the conflict period subject to any broad UN, US, or EU sanctions as a destination for investment or technology transfer.

Afghanistan therefore received a *favorable* rating on international sanctions because they only subsisted during the first 10 months of the 2001–20 conflict period.

123 See, for example, "First NATO Trucks Cross Pakistan Border after 7-Month Closure," NBC News (July 5, 2012), <https://www.nbcnews.com/news/world/first-nato-trucks-cross-pakistan-border-after-7-month-closure-flna864206>.

124 See, for example, Abdul Qadir Sediqi, "Taliban Tax Collectors Help Tighten Insurgents' Grip in Afghanistan," Reuters (November 6, 2018), <https://www.reuters.com/article/us-afghanistan-taliban-finance/taliban-tax-collectors-help-tighten-insurgents-grip-in-afghanistan-idUSKCN1NB19Y>.

125 See Qadir Sediqi Abdul, "Taliban Tax Collectors Help Tighten Insurgents' Grip in Afghanistan," Reuters (November 6, 2018), <https://www.reuters.com/article/us-afghanistan-taliban-finance/taliban-tax-collectors-help-tighten-insurgents-grip-in-afghanistan-idUSKCN1NB19Y>.

126 See, for example, "Telecom Giant MTN Accused of Paying Bribes to Taliban, al-Qaeda," BBC News (December 19, 2019), <https://www.bbc.com/news/world-africa-50952001>.

127 UN Security Council Resolution 1267 (United Nations, New York, 1999), <http://unscr.com/en/resolutions/1267>.

128 See Executive Office of the President of the United States, "Executive Order 13129 of July 4, 1999, Blocking Property and Prohibiting Transactions with the Taliban," 64 Federal Regulation 36759 (published July 7, 1999), <https://www.govinfo.gov/content/pkg/FR-1999-07-07/pdf/99-17444.pdf>.

129 See Executive Office of the President of the United States, "Executive Order 13224 of September 23, 2001, Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism," 66 Federal Regulation 49079 (published September 25, 2001), <https://www.govinfo.gov/content/pkg/FR-2001-09-25/pdf/01-24205.pdf>.

130 See Executive Office of the President of the United States, "Executive Order 13268 of July 2, 2002, Termination of Emergency with Respect to the Taliban and Amendment of Executive Order 13224 of September 23, 2001," 67 Federal Regulation 44751 (published July 3, 2002), <https://www.govinfo.gov/content/pkg/FR-2002-07-03/pdf/02-16951.pdf>.

131 UN Security Council Resolution 1988 (United Nations, New York, June 17, 2011), <http://unscr.com/en/resolutions/1988>.

Afghanistan: Travel restrictions?

Travel to Afghanistan was severely restricted during the two years leading up to the October 2001 invasion by US-led coalition forces. In October 1999, the UN Security Council suspended all international flights by state-owned Ariana Afghan Airlines, except those classed as humanitarian or for the fulfillment of religious obligations. All Ariana company funds were blocked, and no spare parts, supplies, or training could be provided by foreign companies.¹³² In January 2000, following the Taliban's refusal to comply with its demands, the UN Security Council banned all international flights to Afghanistan, closed all Ariana offices outside Afghanistan, and barred Taliban government officials from flying out of the country.¹³³

Travel restrictions on Afghanistan were quickly lifted after the Taliban was removed from power in 2001. In January 2002, the UN Security Council lifted the international flight ban on Ariana and unfroze its assets, on the basis that it was no longer owned, leased, or operated by or on behalf of the Taliban.¹³⁴ The Kabul airport was reopened to humanitarian and military flights in mid-January 2002, but it remained closed for commercial flights pending removal of unexploded ordnance following the coalition bombing.¹³⁵ On January 24, 2002, Ariana resumed operations with its first flight from Kabul to New Delhi.¹³⁶ Ariana also resumed flights to Europe in September 2002.¹³⁷ In 2003, direct flights by foreign air carriers were added from Germany (LTU).¹³⁸

Thereafter, Afghanistan was not subject to any broad security-related travel restrictions from the time of the Nato-led invasion through the end of 2020, except a travel ban imposed on certain individuals associated with al-Qaeda and the Taliban.¹³⁹ Although the Taliban continued operations in certain areas of the country during the conflict period,¹⁴⁰ business air travel to and from Kabul was fairly standard.

Five privately owned mobile operators and one state-owned mobile operator appear to have successfully moved personnel and contractors in and out of the country as they oversaw multiple rounds of investment and the continuing operations of their networks.

Afghanistan received a *favorable* rating for travel restrictions.

Afghanistan: International aid for telecommunications?

Afghanistan received significant international aid for its telecom sector during the period following the Nato-led invasion through the end of 2020.

The World Bank reopened its office in Afghanistan in May 2002 after a 20-year absence. The World Bank provided support for a USD 24 million satellite-based emergency communications system in 2002 and more than USD 6 million in technical assistance for the government to implement telecom sector reforms. In 2011, the World Bank approved a USD 50 million information and communications technology (ICT) sector development grant, which included USD 30 million for the national fiber network.¹⁴¹ The ICT sector development project also helped the young population of Afghanistan receive technical training and supported development of the ICT sector.¹⁴²

The Asian Development Bank (ADB) provided USD 130 million in debt financing and debt guarantees for mobile operator Roshan from 2004 through 2006 to help finance its 2G rollout.¹⁴³ In addition, the World Bank Group's insurance arm, the Multilateral Investment Guarantee Agency, provided USD 76.5 million credit risk support for MTN Group's 2007 equity investment in purchasing Areeba/Investcom (now MTN Afghanistan).¹⁴⁴

132 UN Security Council Resolution 1267 (United Nations, New York, October 15, 1999), <http://unscr.com/en/resolutions/1267>.

133 UN Security Council Resolution 1333 (United Nations, New York, December 19, 2000), <http://unscr.com/en/resolutions/1333>.

134 UN Security Council Resolution 1388 (United Nations, New York, January 15, 2002), <http://unscr.com/en/resolutions/1388>.

135 "Kabul Airport Reopens," *The New Humanitarian* (January 16, 2002), <https://www.thenewhumanitarian.org/news/2002/01/16/kabul-airport-reopens>.

136 Nicholas Ionides, "New Delhi/Kabul Airlink Is Reopened," *FlightGlobal* (February 4, 2002), <https://www.flightglobal.com/new-dehli/kabul-airlink-is-reopened/41315.article>.

137 "Ariana Afghan Back on Western Europe Route," *FlightGlobal* (September 30, 2002), <https://www.flightglobal.com/ariana-afghan-back-on-western-europe-route/45079.article>.

138 "German Airline Criticized for Kabul Flights," *Deutsche Welle* (September 1, 2003), <https://www.dw.com/en/german-airline-criticized-for-kabul-flights/a-960483>.

139 See Executive Office of the President of the United States, "Executive Order 13268 of July 2, 2002, Termination of Emergency with Respect to the Taliban and Amendment of Executive Order 13224 of September 23, 2001," §1; Executive Office of the President of the United States, "Executive Order 13224 of September 23, 2001, Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism," §2 and annex, <https://www.govinfo.gov/content/pkg/FR-2002-07-03/pdf/02-16951.pdf>.

140 B. R. Hughes, "Do Tourists Really Go to Afghanistan?" *BBC News* (August 4, 2016), <https://www.bbc.com/news/world-asia-36974513>.

141 See World Bank, "Implementation Completion and Results Report on Afghanistan ICT Sector Development Project," (World Bank, Washington, DC, August 10, 2018), 7, para 12, <https://documents1.worldbank.org/curated/en/334521534181268872/pdf/P121755-FINAL-ICR-10-Aug-2018-08102018.pdf>.

142 World Bank, "Youth Gain Information and Communication Skills to Improve Afghanistan's Future," *Feature* (May 30, 2017), www.worldbank.org/en/news/feature/2017/05/30/afghan-youth-undergo-training-to-power-future.

143 See ADB (Asian Development Bank), *Development Effectiveness Brief: Afghanistan – Modernizing Asia's Crossroads* (ADB, Mandaluyong, Philippines, 2010), 7–8, <https://www.adb.org/sites/default/files/publication/28759/dec-b-afg.pdf>.

144 See MIGA (Multilateral Investment Guarantee Agency), "MIGA: Mobilizing Investments, Rebuilding Confidence," in *MIGABrief: Conflict-Affected and Fragile Countries* (MIGA, Washington, DC, 2015), <https://documents1.worldbank.org/curated/en/464361468162538473/pdf/77591-REVISED-BRI-MIGA-JAN-2015-conflict.pdf>.

The World Bank's private sector arm, the International Finance Corporation, provided USD 65 million in credit and USD 10 million in equity to mobile operator MTN in 2009 to help finance network expansion,¹⁴⁵ and it provided USD 65 million in credit to mobile operator Roshan in 2013 to help finance its 3G rollout.¹⁴⁶

The United States has invested more than USD 2.6 billion in the Afghan ICT sector since 2002, but more than USD 2.5 billion was non-civilian investment by the US Department of Defense to strengthen the communications capabilities of the Afghan National Army and Police. Some civilian aid was supplied by the United States Agency for International Development (USAID) for communications and capacity-building programs such as an e-government resource center and a mobile money program.¹⁴⁷

Other members of the international donor community also supported development of the Afghan ICT sector through various projects and assistance programs. For example, the International Telecommunication Union (ITU) helped the MCIT create telecommunications policies and laws, the United Nations Development Programme (UNDP) supported the National Data Center project, and Microsoft and Cisco provided training opportunities to the MCIT.¹⁴⁸ Afghanistan received a *favorable* rating for international aid for civilian telecommunications based on the support of the World Bank Group, ADB, ITU, USAID, UNDP, and private sector partners.

Afghanistan: International security intervention?

The international community provided security and peacekeeping forces to promote security in Afghanistan after the Taliban was removed from power in 2001 through the end of 2020.

After the September 11, 2001, attacks, the UN Security Council quickly acted to invite member states to send peacekeepers to Afghanistan¹⁴⁹ and authorized the deployment of the International Security Assistance Force (ISAF).¹⁵⁰ In addition to ISAF peacekeepers, the United Nations Assistance Mission in Afghanistan was established in March 2002.

ISAF was initially designed to be led by allies of NATO on a rotational basis, but NATO took the lead of the ISAF operation in 2003. Its mandate later expanded to cover the entire country. ISAF took over command from the US-led coalition in certain parts of the country in 2006.¹⁵¹

The US-led coalition carried out significant security operations in the country from 2001 to 2014, when its combat mission ended. However, US troops remained in the country as part of the Resolute Support Mission, which was launched as a new NATO-led, non-combat mission to train, advise, and assist the Afghan security forces and institutions.¹⁵²

Afghanistan received a *favorable* rating for international security intervention.

145 See "IFC Provides MTN Afghanistan with \$75m to Expand Operations," Creamer Media's Engineering News (June 23, 2009), <https://www.engineering-news.co.za/article/ifc-provides-mtn-afghanistan-with-75m-to-expand-operations-2009-06-23>.

146 See IFC (International Finance Corporation), "Roshan," IFC Inclusive Business Company Profile (IFC, Washington, DC, 2014), 4, <https://www.ifc.org/wps/wcm/connect/bfd8dc95-14d7-47d0-943a-2d65be03e881/Roshan.pdf?MOD=AJPERES&CVID=lv2UWmb>.

147 Special Inspector General for Afghanistan Reconstruction (SIGAR), "Afghanistan's Information and Communications Technology Sector: U.S. Agencies Obligated Over \$2.6 Billion to the Sector, but the Full Scope of U.S. Efforts is Unknown," Audit Report (SIGAR, Arlington, VA, July 2016), 16–46, <https://www.hsdl.org/?view&did=811082>.

148 Donors, Ministry of Communications and Information Technology (accessed May 21, 2021), mcit.gov.af/node/6942.

149 UN Security Council Resolution 1378 (United Nations, New York, 2001), <http://unscr.com/en/resolutions/1378>.

150 UN Security Council Resolution 1386 (United Nations, New York, 2001), <http://unscr.com/en/resolutions/1386>.

151 "NATO and Afghanistan," North Atlantic Treaty Organization (last updated April 15, 2021), https://www.nato.int/cps/en/natohq/top-ics_8189.htm.

152 Kay Johnson, "U.S.-Led Mission in Afghanistan Ends Combat Role; Thousands of Foreign Troops Remain," Reuters (December 28, 2014), www.reuters.com/article/us-afghanistan-war-idUSKBNOK60FB20141228.

Afghanistan: Summary of key findings across all the external factors

Table 6 summarizes the scoring of the five external factors impacting Afghanistan’s telecom investment climate. It also offers the key relevant facts that led to the score for each factor.

Table 6: Afghanistan: Assessment of external factors impacting the telecom investment climate

External factor assessed	Score	Key relevant facts
Military interference	1	2012, Pakistan imposed a seven-month blockade, closing its border to NATO trucks as retaliation for the killing of Pakistani soldiers Taliban operations impeded import and movement of goods and targeted destruction of mobile towers and other infrastructure
International sanctions	2	No broad US, EU, or UN sanctions
Travel restrictions	2	No official travel restrictions Mobile operators relatively unimpeded from 2003 through 2020
International aid for telecommunications	2	Major support from World Bank, ADB, IFC, MIGA, USAID, ITU
International security intervention	2	Significant security operations by US-led coalition 2002, UN Assistance Mission established
All	9	

Source: MacMillan Keck.

Note: ADB = Asian Development Bank; IFC = International Finance Corporation; ITU = International Telecommunication Union; MIGA = Multilateral Investment Guarantee Agency; NATO = North Atlantic Treaty Organization; UN = United Nations; USAID = United States Agency for International Development.

2.4 Afghanistan’s projected and actual teledensity evolution

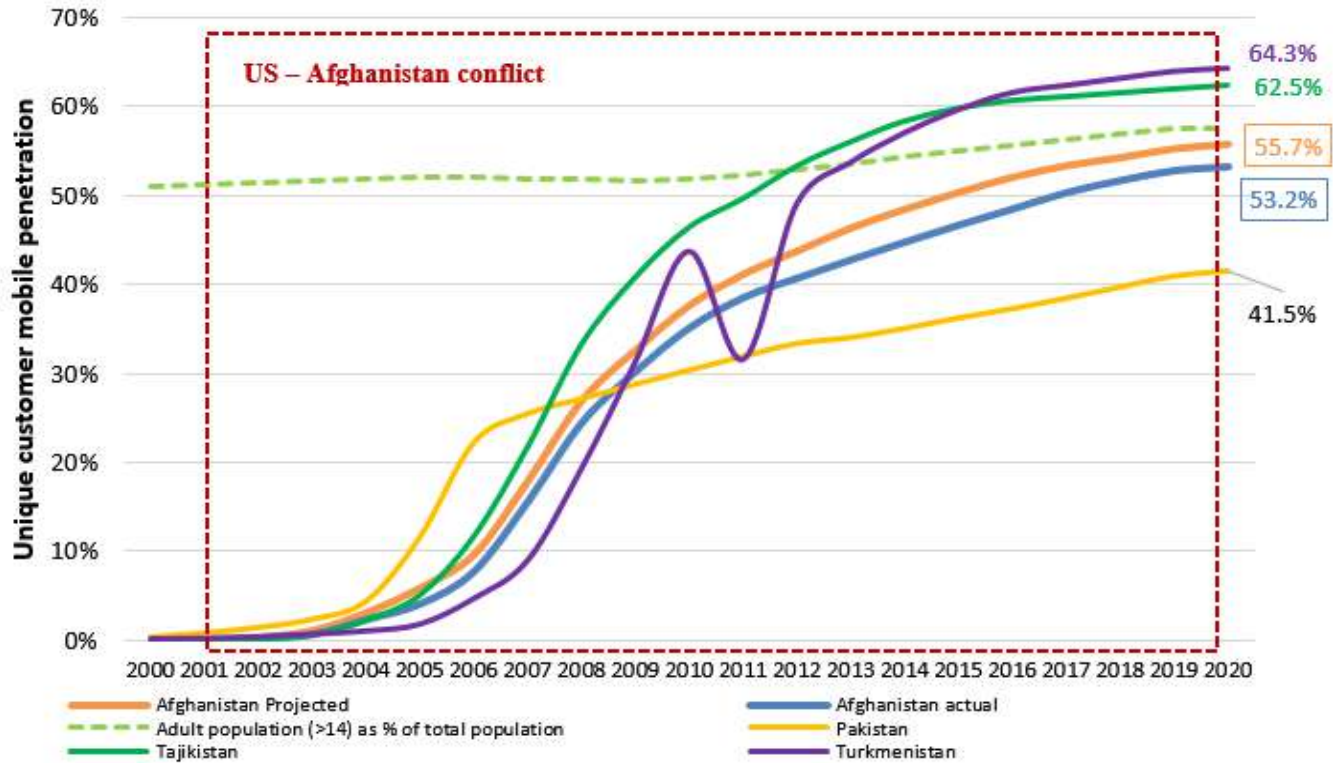
The following subsections assess and analyze Afghanistan’s projected and actual mobile teledensity evolution from 2000 through 2020 and during the conflict period beginning in 2021.

Afghanistan’s unique subscriber mobile penetration

Afghanistan’s mobile penetration is considered from 2000 through 2020. The US-Afghan-Taliban conflict continued for much of the same period, from 2001 through 2020 (when it had not yet ended). Pakistan, Tajikistan, and Turkmenistan were considered as reasonable regional markets suitable for benchmarking. Afghanistan’s adult (age 15+) population was also considered as a guide for full market penetration (unique subscribers), although mobile phone use by those younger than 15 years is growing in some markets. Afghanistan’s 2020 mobile penetration was 4.4 percentage points below the adult population percentage.

The projected growth in the but-for-the-conflict scenario was modeled to represent a reasonable basis for what could have transpired absent the conflict, with realistic improvements in the investment environment and earlier stimulation of market growth. Afghanistan’s projected but-for-the-conflict growth follows a similar trend as that in Tajikistan from about 2010. The gap in Afghanistan’s mobile penetration between the actual and the but-for-the-conflict scenarios grew from zero at the onset of the conflict in 2001 to 2.5 percentage points by 2020. The results are shown in figure 8.

Figure 9: Afghanistan's mobile penetration growth rate, 2000–20



Source: MacMillan Keck.

Note: Penetration rates below 1 percent were disregarded due to the unreliability of data in this nascent stage of development. RoC = Rate of change

As in most developing countries, the adult-age (15+) population (the green dashed line in figure 8) serves as an invisible upper bound on potential unique customer mobile penetration. Afghanistan had no measurable mobile penetration prior to 2001, after years of Taliban rule. Its peer group of Pakistan, Tajikistan, and Turkmenistan was in a similar situation.

In the but-for-the-conflict scenario, Afghanistan's mobile penetration (the orange curve in figure 9) is projected to have grown at a slightly faster rate than actual mobile penetration (the blue curve in figure 8). The projected growth would have been behind that of Tajikistan for almost the entire period, well behind Pakistan until 2009 (reflecting the fact that Pakistan's penetration growth slowed considerably from 2007), and faster than Turkmenistan's penetration to 2009 (after which Turkmenistan grew faster than the peer group, apart from an anomalous drop in 2011). Unique Afghan subscriber mobile penetration but-for-the-conflict is projected to have reached 55.7 percent by 2020, a similar level as the peer country average and very near full penetration of the adult population.

The but-for-the-conflict projection is challenging in the case of Afghanistan because mobile penetration was effectively at 0 percent when the conflict began in 2001. Mobile services were in their infancy in Pakistan, Tajikistan, and Turkmenistan in 2001. Afghanistan's actual mobile penetration grew at a rate below that of Pakistan and Tajikistan and above that of Turkmenistan until 2009, when Pakistan's penetration slowed markedly. An approach to modeling the but-for-the-conflict projection is to follow the same trend but to be slightly higher than the actual penetration curve, ending 2.5 percentage points above the actual curve.

As the projected endpoint is the most significant point on this curve, two factors informed this end projection, namely the average of the peer group (56.1 percent) and the notional bound of the percentage of population older than 14 years (58 percent). The projection was constructed by mapping estimated penetration on an annual basis and ensuring that year-on-year increases followed a smooth and declining trend as would be expected in normal development conditions, also considering the three-year delay in implementation of 4G services.

Afghanistan's actual mobile penetration growth since 2008 compares favorably with its neighbors, at around the average of the peer group. Pakistan's penetration exceeded Afghanistan's until 2009, when Afghanistan overtook Pakistan and continued growing at a higher rate. Turkmenistan's mobile penetration was initially less than Afghanistan's but overtook Afghanistan in 2009 and continued to widen the gap through 2020. Tajikistan's mobile penetration has been consistently higher than Afghanistan's since 2003, reaching a 9.3 percentage point difference by 2020.

The but-for-the-conflict projection anticipates that 4G would have been introduced around 2014/15, as the three peer country neighbors all launched 4G service well before Afghanistan's actual 4G launch in 2017 – Turkmenistan in 2013, Tajikistan in 2014, and Pakistan in 2014. An earlier 4G launch in Afghanistan would have driven higher penetration levels, as Afghanistan's actual penetration growth rate increased after 4G was launched in 2017. Afghanistan launched 3G services commercially in 2012, around the same time as its neighbors (2010–14) and the delayed upgrade to 4G may well have been influenced by the need to grow the market for mobile broadband service on 3G before spending more on further network technology upgrades. Indeed, three operators began deploying 4G equipment using their original 3G spectrum assignments, and two operators chose not to upgrade to 4G when their rivals did. By the time of the auction of additional 4G spectrum in 2021 (which was after the end of the period being studied), the state-owned mobile operator was the only bidder.

The but-for-the-conflict projection curve follows an S-curve, with steady growth continuing beyond 2009 resulting in a penetration differential of 4.7 percentage points over actual penetration by 2020. The projection

anticipates that unique subscriber mobile penetration would eventually have exceeded the 58 percent adult population and models penetration as approaching this level by 2020. Two of the benchmarked neighboring countries were approaching this notional limit in 2020, with Turkmenistan at 64.3 percent penetration in an adult population of 69 percent and Tajikistan at 62.5 percent penetration in an adult population of 63 percent. Meanwhile, Pakistan only reached 41.5 percent mobile penetration by 2020 in an adult population of 65 percent – remaining well below the notional limit.

Afghanistan has benefited from relatively favorable internal and external telecom investment climate factors throughout much of the 20-year conflict. As a result, although Afghanistan's actual mobile penetration has remained lower than its projected but-for-the-conflict penetration, the differential was more modest than it may have otherwise been. Afghanistan's mobile penetration projection (the orange curve in figure 8) tracks actual penetration (the blue curve in figure 8) closely from 2002 through 2007, reflecting the fact that Afghanistan experienced reasonably consistent growth over the conflict period. Thus, actual penetration only fell to 2.5 percentage points below projected but-for-the-conflict penetration by 2020. Afghanistan's mobile sector was born in conflict and has developed consistently despite the challenging environment.

Afghanistan's mobile penetration growth rate

Afghanistan's mobile penetration growth rate (which is the rate of change in penetration from one year to the next) is also considered over 2000–20.

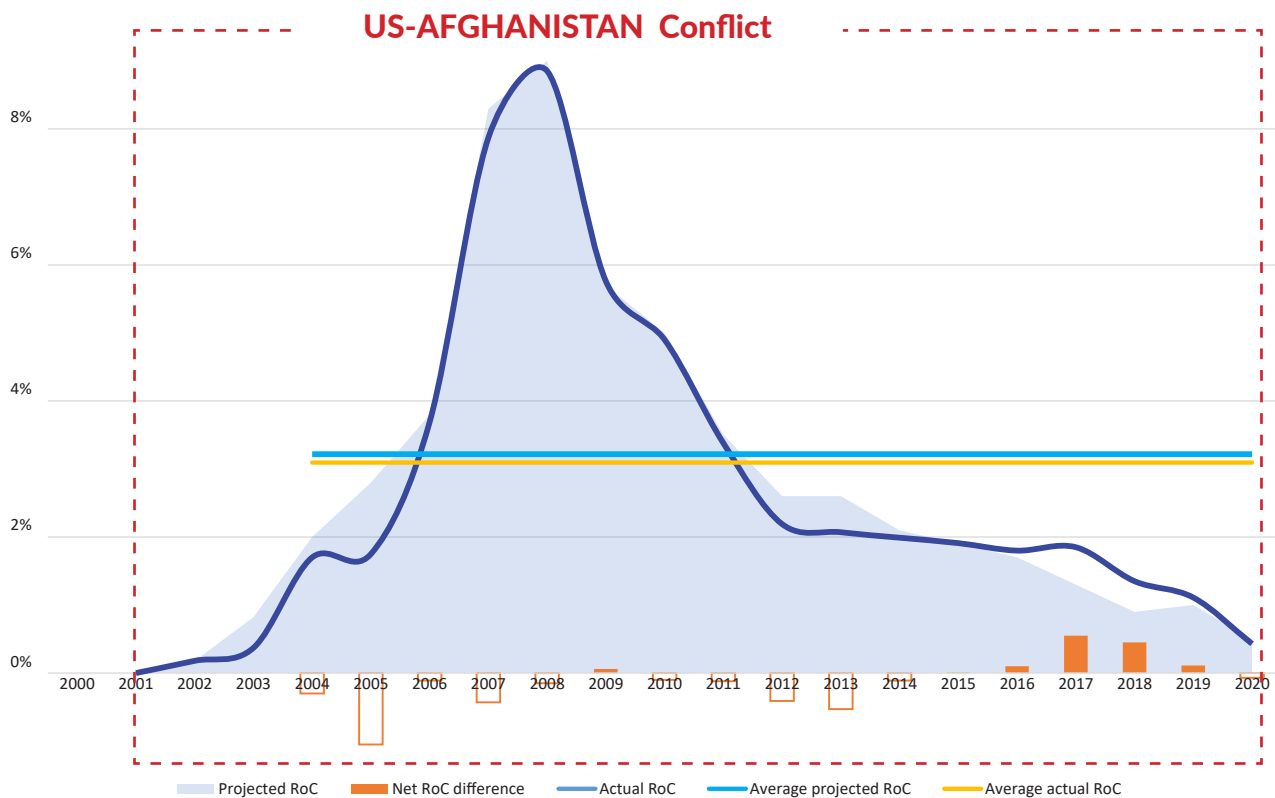
Afghanistan's very low baseline infrastructure and relatively favorable internal and external investment climate since 2001 produced ripe conditions for mobile investment. Teledensity growth rates since 2001 reflect the release of pent-up demand and supply-side investment to meet that demand. The growth rate was therefore positive throughout the conflict period, meaning that total penetration has never declined.

The actual growth rate was less than the but-for-the-conflict growth rate for most years from 2003 through 2014, meaning that the total number of new unique subscribers added during this period was less than would have been added but-for-the-conflict. However, actual growth rates were greater than but-

for-the-conflict growth rates from 2015 through 2019, meaning that the total number of subscribers added during this period exceeded the number that would have been added under the but-for-the-conflict scenario. This enabled Afghanistan’s mobile penetration to make up some of the ground lost in prior years. Afghanistan has thus suffered relatively little impairment of teledensity growth rates when averaged over the entire conflict period. Actual penetration exceeded 85 percent of the adult population.

The results are depicted in figure 9, in which the yellow line represents the average annual mobile penetration growth rate during the 2001–20 conflict period. The grey line in the figure represents the average but-for-the-conflict annual penetration growth rate during the conflict period. The difference between the grey and yellow lines during the conflict period is the average annual growth rate deficit. As graphed in figure 9, the deficit appears very small because the net effect over time is small. The main difference is that the growth occurs earlier in the period in the projected but-for-the-conflict penetration model, and it remains ahead of actual growth up to 2017 but never by more than 1 percent.

Figure 9: Afghanistan’s mobile penetration growth rate, 2000–20



Source: MacMillan Keck.

Note: Penetration rates below 1 percent were disregarded due to the unreliability of data in this nascent stage of development. RoC = Rate of change

Even under ideal circumstances, growth in Afghanistan would have been challenging, and the but-for-the-conflict projections reflect that. However, with an actual annual growth rate of 3.09 percent and a but-for-the-conflict annual growth rate of 3.22 percent, Afghanistan experienced a relatively low 3.8 percent deficit in its average annual growth rate during the conflict.

2.5 Correlating Afghanistan's supply-side investment climate and teledensity

The assessment of Afghanistan can inform an overall view of the relationship between the supply-side telecom investment climate and the evolution of teledensity during the conflict.

During 2001–20, Afghanistan was assessed as having an internal factor investment climate rating of 8 and an external factor investment climate rating of 8. Key internal factors included (1) prompt issuance of interim and long-term licenses to multiple competing mobile operators and (2) early introduction of an independent regulator. Key external factors included (1) lifting or relaxation of pre-conflict sanctions after the US-led intervention, (2) facilitation of equipment imports by the occupying coalition, (3) significant foreign aid from international donors, and (4) extensive security assistance from NATO and the US-led coalition.

Afghanistan's actual average annual teledensity growth rate during 2001–20 suffered only a 3.8 percent decline compared with its projected but-for-the-conflict teledensity growth rate. This was the lowest growth rate deficit among all seven countries studied. Thus, despite having virtually no telecom infrastructure at the onset of the conflict, by 2020 Afghanistan was able to achieve unique mobile subscriber penetration of about 85 percent of the adult population.

3

The Republic of Iraq

This component of the study assesses the impact on the mobile market in Iraq of the 2003–11 conflict arising from the invasion, occupation, and withdrawal of the US-led coalition.

3.1 Iraqi context

The following passages provide information on Iraq's geography, demographics, and economy; the ongoing series of conflicts and civil instability that started in 2003; and the telecom sector.

Iraq's geography, demographics, and economy

Iraq is located in the Middle East, with a narrow 58 kilometer coastline on the Persian Gulf, between the Islamic Republic of Iran to the east and Kuwait to the south (map 2). It is also bordered by Turkiye to the north, the Syrian Arab Republic to the northwest, Jordan to the west, and Saudi Arabia to the southwest.

Map 2: Iraq



Source: UN Geospatial > Iraq (July 1, 2014), <https://www.un.org/geospatial/content/iraq>.

Iraq is heir to a large part of Mesopotamia, the land between the Tigris and Euphrates Rivers that was home to one of humankind's earliest civilizations.¹⁵³ Iraq has a population of 40.2 million¹⁵⁴ and a land area of 434,128 square kilometers (about 167,618 square miles).¹⁵⁵ The population is concentrated in the north, central, and eastern areas, with many of the larger urban areas along the Tigris and Euphrates Rivers, and much of the western and southern areas lightly populated or uninhabited.¹⁵⁶ About 71 percent of the population lives in urban areas.¹⁵⁷ Baghdad, the capital, has a population of about 7.1 million.¹⁵⁸ Life expectancy at birth in 2019 was 70.6 years.¹⁵⁹

Iraq's terrain is mostly broad plains. The area along the Iranian border in the south comprises reedy marshes with large, flooded areas. The remainder of the border with the Islamic Republic of Iran and the border with Türkiye are defined by mountain ranges.¹⁶⁰ About 27 percent of Iraq's land area is potentially suitable for agriculture, but only about 7-9 percent is actually used for crop production due to soil salinity, drought, irrigation water shortages, fallowing, and the unstable political situation.¹⁶¹ About 9 percent of the land area, largely located in rocky and steep mountain areas that are unsuitable for farming, is used as permanent pasture for goats and sheep.¹⁶² Over 50 percent of the land is unused desert.¹⁶³

The desert climate that prevails in much of Iraq is characterized by mild-to-cool winters and dry, hot, cloudless summers. The northern mountain regions along the Iranian and Turkish borders experience cold winters with occasionally heavy snows that melt in early spring, sometimes causing extensive flooding in central and southern Iraq.¹⁶⁴

Gross domestic product (GDP) per capita, based on purchasing power parity, was nearly USD 9,764 in 2020. Estimated GDP composition by sector of origin in 2017 was 3.3 percent agriculture, 51 percent industry, and 45.8 percent services.¹⁶⁵ Iraq's primary natural resources are petroleum, natural gas, phosphates, and sulfur.¹⁶⁶ Its primary commodity exports in 2019 were crude petroleum (90.4 percent), refined petroleum (5.26 percent), gold (3.11 percent), petroleum coke (0.44 percent), and tropical fruit (0.44 percent).¹⁶⁷ The labor force was about 10.4 million in 2020.¹⁶⁸ Unemployment in 2020 was an estimated 13.7 percent.¹⁶⁹ The poverty rate had declined to 24.8 percent in the second half of 2020 after the government eased measures taken to prevent the spread of COVID-19, after having risen to 31.7 percent during the lockdowns and business closures.¹⁷⁰ Today, 100 percent of the population has access to electricity.¹⁷¹ Although a large percentage of the population normally has access to sanitary facilities and treated drinking water, in 2019, more than 2.3 million people, including 1.4 million internally displaced persons (IDPs), lacked adequate access to such facilities.¹⁷²

The literacy rate is 85.6 percent, including 91.2 percent of males and 79.9 percent of females.¹⁷³

153 See Embassy of the Republic of Iraq > About Iraq (2021), <http://www.iraqiembassy.us/page/about-iraq>.

154 World Bank > DataBank > World Development Indicators (2020).

155 World Bank > Data > Land area (sq. km) – Iraq (2020).

156 See A. A. Jaradat, *Agriculture in Iraq: Resources, Potentials, Constraints, and Research Needs and Priorities* (US Department of Agriculture, Washington, DC, 2002), 21, <https://www.ars.usda.gov/ARSUserFiles/50600000/Products-Reprints/2002/1107.pdf>.

157 Statista > Economy & Politics > International > Iraq: Urbanization from 2010 to 2020 (2020), <https://www.statista.com/statistics/326837/urbanization-in-iraq/>.

158 World Bank > DataBank > World Development Indicators (2020).

159 World Bank > DataBank > World Development Indicators (2019).

160 Country Reports > Iraq Geography (2021), <https://www.countryreports.org/country/Iraq/geography.htm>.

161 Food and Agriculture Organization of the United Nations > Iraq at a Glance (2021), <https://www.fao.org/iraq/fao-in-iraq/iraq-at-a-glance/en/>.

162 See Food and Agriculture Organization of the United Nations > Iraq at a Glance (2021), <https://www.fao.org/iraq/fao-in-iraq/iraq-at-a-glance/en/>; Country Reports > Iraq Geography (2021), <https://www.countryreports.org/country/Iraq/geography.htm>; A. A. Jaradat, *Agriculture in Iraq: Resources, Potentials, Constraints, and Research Needs and Priorities* (US Department of Agriculture, Washington, DC, 2002), 60, <https://www.ars.usda.gov/ARSUserFiles/50600000/Products-Reprints/2002/1107.pdf>.

163 A. A. Jaradat, *Agriculture in Iraq: Resources, Potentials, Constraints, and Research Needs and Priorities* (US Department of Agriculture, Washington, DC, 2002), 25, <https://www.ars.usda.gov/ARSUserFiles/50600000/Products-Reprints/2002/1107.pdf>.

164 Country Reports > Iraq Geography (2021), <https://www.countryreports.org/country/Iraq/geography.htm>.

165 IndexMundi > Iraq GDP Composition by Sector (2017 est.), https://www.indexmundi.com/iraq/gdp_composition_by_sector.html.

166 Country Reports > Iraq Geography (2021), <https://www.countryreports.org/country/Iraq/geography.htm>.

167 The Observatory of Economic Complexity > Profile > Country > Iraq > Yearly Exports (2021) (data sourced from Centre d'Études Prospectives et d'Informations Internationales), <https://oec.world/en/profile/country/irq#yearly-exports>.

168 World Bank > DataBank > Labor force, total – Iraq (2020).

169 World Bank > DataBank > World Development Indicators (2020) (modeled International Labour Organization estimate).

170 "Iraq: Poverty Rate Fell to 24.8 Per Cent during Second half of 2020," *Middle East Monitor* (March 17, 2021), <https://www.middleeastmonitor.com/20210317-iraq-poverty-rate-fell-to-24-8-per-cent-during-second-half-of-2020/>.

171 World Bank > Data > Access to electricity (% of population) – Iraq (2019).

172 See UNICEF (United Nations Children's Fund), "Iraq 2019 Humanitarian Situation Report" (UNICEF, New York, 2020), 2–3, <https://www.unicef.org/iraq/media/1056/file/Iraq%20Humanitarian%20Situation%20Report%20for%20End%20Year%202019.pdf>.

173 World Bank > DataBank > World Development Indicators (2017).

The conflict in Iraq

This component of the study assesses the impact of the 2003–11 conflict on the mobile market in Iraq, starting with the invasion by a US-led coalition in March 2003 and ending with the December 2011 withdrawal of the coalition forces. The 2013 invasion by the Islamic State of Iraq and the Levant (ISIL) and subsequent conflict are briefly considered in the post-conflict analysis below.

As part of the US-led invasion of Iraq on March 19, 2003, US and British forces quickly defeated the Iraqi Army, which was disbanded in May 2003.¹⁷⁴ Saddam Hussein was captured in December 2003 and later tried and executed for crimes against humanity.¹⁷⁵

The deposed government was replaced by the Coalition Provisional Authority (CPA) established by the United States and its allies pursuant to United Nations (UN) Security Council Resolution 1483 and the laws of war.¹⁷⁶ The CPA vested itself with executive, legislative, and judicial authority over the Iraqi government from its inception on April 16, 2003, until its dissolution on June 28, 2004, when sovereignty was transferred to an interim Iraqi government.¹⁷⁷

As part of ongoing efforts to improve citizen support for representative government, Iraq's National Assembly enacted a new election law on November 8, 2009. Among other things, the new law increased the size of the Council of Representatives from 275 to 325 members and made other changes in the apportionment system.

The first elections under the new election law were held on March 7, 2010. Voter turnout in 2010 was lower (62.4 percent) than in 2005 (79.6 percent). Numerous allegations of fraud were made, and a recount of votes in Baghdad was ordered, but the Independent High Elections Commission found no fraud or violations. The new Parliament opened on June 14, 2010. After months of negotiations, an agreement

among the rival parties (none with a majority) was reached to form a new government on November 11, 2010. Talabani would continue as president, Al-Maliki would continue as prime minister, and Allawi would head the new Security Council.¹⁷⁸

Meanwhile, coalition combat operations ended on August 31, 2010, and a troop drawdown began, with the final group of US-led forces withdrawing on December 18, 2011. The troops were succeeded by diplomatic missions from the coalition countries.¹⁷⁹

In 2013, ISIL entered Iraq from neighboring Syria, quickly established a foothold, and eventually controlled about 40 percent of the country's territory. A US-led coalition began airstrikes against ISIL in Iraq on August 7, 2014, and expanded the campaign to Syria the following month.¹⁸⁰ US President Obama also deployed a small contingent of US ground troops to Iraq to protect the US Embassy and conduct training operations.¹⁸¹ The United States officially concluded its Iraqi military operations against ISIL in 2018.¹⁸²

174 See Stephen T. Hosmer, *Why the Iraqi Resistance to the Coalition Invasion Was So Weak* (RAND, Santa Monica, CA, 2007), https://www.rand.org/content/dam/rand/pubs/monographs/2007/RAND_MG544.pdf.

175 Council on Foreign Relations > Timeline > The Iraq War (2021), <https://www.cfr.org/timeline/iraq-war>.

176 See L. Paul Bremer, Administrator, Coalition Provisional Authority Regulation No. 1 preamble (May 16, 2003), <http://gjpi.org/wp-content/uploads/cpa-reg-1-the-coalition-provisional-authority.pdf>. See also James Dobbins, Seth G. Jones, Benjamin Runkle, and Siddharth Mohandas, *Occupying Iraq: A History of the Coalition Provisional Authority* (RAND, Santa Monica, CA, 2003), https://www.rand.org/content/dam/rand/pubs/monographs/2009/RAND_MG847.pdf.

177 See L. Paul Bremer, Administrator, Coalition Provisional Authority Regulation No. 1, preamble (May 16, 2003), §1, <http://gjpi.org/wp-content/uploads/cpa-reg-1-the-coalition-provisional-authority.pdf>. See also James Dobbins, Seth G. Jones, Benjamin Runkle, and Siddharth Mohandas, *Occupying Iraq: A History of the Coalition Provisional Authority* (RAND, Santa Monica, CA, 2003), 11, 15, 325, https://www.rand.org/content/dam/rand/pubs/monographs/2009/RAND_MG847.pdf.

178 "Nouri Maliki reappointed Iraqi prime minister," BBC News (November 12, 2010), <https://www.bbc.com/news/world-middle-east-11732158>.

179 Council on Foreign Relations > Timeline > The Iraq War (2021), <https://www.cfr.org/timeline/iraq-war>.

180 See "Timeline: the Rise, Spread, and Fall of the Islamic State," Wilson Center (October 28, 2019), <https://www.wilsoncenter.org/article/timeline-the-rise-spread-and-fall-the-islamic-state>.

181 See Tim Arango, "U.S. Troops, Back in Iraq, Train a Force to Fight ISIS," *The New York Times* (December 31, 2014), <https://www.nytimes.com/2014/12/31/world/us-troops-back-in-iraq-train-a-force-to-fight-isis.html>; "Legal Basis for Iraq Troop Deployment Called into Question as Days Wear On," *The Guardian* (September 5, 2014), <https://www.theguardian.com/world/2014/sep/05/us-troops-deployment-iraq-legal-justification>.

182 "Global Conflict Tracker: Political instability in Iraq" (Council on Foreign Relations, New York, last updated May 18, 2021), <https://www.cfr.org/global-conflict-tracker/conflict/political-instability-iraq>.

Iraq's telecom sector

The 1991 Persian Gulf War following Iraq's 1990 annexation of Kuwait, subsequent international sanctions imposed on Iraq, and restrictions on civilian activities under Saddam Hussein's rule together had a devastating impact on Iraq's telecom sector. At the time of the March 2003 US-led invasion, Iraq had very limited telecom infrastructure. In 2002, fixed voice teledensity was 4.5 percent¹⁸³ and mobile penetration was zero,¹⁸⁴ because public mobile services had been banned under Saddam Hussein.¹⁸⁵

In June 2003, CPA issued an order directing the Ministry of Transportation and Communications (MTC) to assume responsibility for licensing commercial telecom services in Iraq in accordance with International Telecommunication Union commitments.¹⁸⁶ Under this directive, in October 2003, the ministry issued three two-year Global System for Mobile Communications (GSM) licenses to mobile operators Asiacell, Atheer, and Orascom. The separate licenses required Asiacell to build out the northern region, Orascom to build out the central region, and Atheer Tel to build out the southern region. The three operators were collectively required to pay a USD 5 million license fee for the two-year period, to be shared in proportion to the number of potential subscribers in each region.¹⁸⁷

In March 2004, the a government order was issued establishing the Iraqi Communication and Media Commission (CMC) as an independent regulator with a converged portfolio including telecom, broadcasting, and media markets with a mandate that included fostering competition and establishing market rules in Iraq's telecom sector.¹⁸⁸

The order prescribed a modern and predictable legal framework for the sector designed to encourage private sector investment and competition.¹⁸⁹ The order also transferred licensing authority from the ministry to the CMC.¹⁹⁰

Although the GSM licenses issued in 2003 had been set to expire at the end of 2005, the CMC regularly granted three-month extensions of all three licenses until it could complete a long-term licensing process, which occurred in August 2007.¹⁹¹ In August 2007, the CMC auctioned three 15-year GSM licenses, indicating that it did not intend to issue any additional mobile licenses. The reserve bid price for each license was set at USD 300 million plus an 18 percent revenue share.¹⁹² The final bid price was USD 1.25 billion per license, which the government agreed could be paid over five years.¹⁹³ Incumbents MTC Atheer (owned by Zain) and Asiacell were successful, but Orascom-owned incumbent Iraqna was outbid by Korek Telecom, a small Kurdish mobile operator that had previously only served the north of Iraq.¹⁹⁴ Following the auction, Orascom entered into a short-lived alliance with Korek, before agreeing several months later to sell its existing Iraqi mobile assets to Zain for USD 1.2 billion.¹⁹⁵

The market had become widely imbalanced by mid-2009. Zain had full national coverage and, due in part to its acquisition of Orascom, had over 70 percent of the subscribers, while Asiacell, with coverage inferior to Zain's, had the remaining 30 percent of the subscribers. Korek did not yet have the infrastructure in place to deploy national services, with operations only in a small northern Kurdish region, so its national subscriber share was still de minimis.¹⁹⁶

183 ITU > ITU-D > Statistics > Fixed-Telephone Subscriptions 2000-2020 (2021), <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>.

184 ITU > ITU-D > Statistics > Mobile-Cellular Subscriptions 2000-2020 (2021).

185 See Reuters, "Phones Come Alive in Baghdad," *Wired* (July 22, 2003), <https://www.wired.com/2003/07/phones-come-alive-in-baghdad/>.

186 See L. Paul Bremer, Administrator, Coalition Provisional Authority Order No. 11, Licensing Telecommunications Services and Equipment (June 9, 2003), https://govinfo.library.unt.edu/cpa-iraq/regulations/20030609_CPAORD_11_Licensing_Telecommunications_Svc_and_Equipment.pdf.

187 See "Arab firms win Iraqi phone contracts," *Al Jazeera* (October 9, 2003), <https://www.aljazeera.com/news/2003/10/9/arab-firms-win-iraqi-phone-contracts>.

188 See L. Paul Bremer III, Administrator, Coalition Provisional Authority Order No. 65, Iraqi Communications and Media Commission (March 20, 2004), https://govinfo.library.unt.edu/cpa-iraq/regulations/20040320_CPAORD65.pdf.

189 Al Tamimi & Co., "An Insight into the Communication Sector in Iraq" (August 1, 2016), <https://www.lexology.com/library/detail.aspx?g=0f957745-56f4-48f2-9836-f1b625d45f08>.

190 See L. Paul Bremer III, Administrator, Coalition Provisional Authority Order No. 65, Iraqi Communications and Media Commission (March 20, 2004), §12.1, https://govinfo.library.unt.edu/cpa-iraq/regulations/20040320_CPAORD65.pdf.

191 See James Middleton, "Three Iraq GSM Licences Awarded," *Telecoms.com News* (August 20, 2007), <https://telecoms.com/634/three-iraq-gsm-licences-awarded/>.

192 See Suleiman al-Khalidi, "Iraq Launches Sale of Mobile Phone Licenses," *Reuters* (August 16, 2007), <https://www.reuters.com/article/tech-telecoms-iraq-auction-dc/iraq-launches-sale-of-mobile-phone-licenses-idUKL1687621920070816>.

193 See "Mobile Operators Asked to Pay USD2.85bn in Licence Fees, Fines," *CommsUpdate* (TeleGeography, Washington, DC, August 12, 2011), <https://www.commsupdate.com/articles/2011/08/12/mobile-operators-asked-to-pay-usd2-85bn-in-licence-fees-fines/>.

194 Suheil Ahmed, "Egyptian Telecom Firm Withdraws from Iraqi Mobile Phone Auction," *Associated Press* (August 17, 2007), <https://www.taiwannews.com.tw/en/news/504990>.

195 Inal Ersan, "Zain's \$1.2 Bln Deal Lets Orascom Telecom Quit Iraq," *Reuters* (December 1, 2007), <https://www.reuters.com/article/us-zain-orascom-iraq/zains-1-2-bln-deal-lets-orascom-telecom-quit-iraq-idUSL016863420071201>.

196 "Iraq Approves Auction of Two Mobile Licences," *IHS Markit* (July 15, 2009), <https://ihsmarkit.com/country-industry-forecasting.html?ID=106595310>.

By May 2010, Korek, owned by a group of Kurdish investors, had reportedly fallen behind on payments for its 2007 license (which Zain and Asiacell had paid).¹⁹⁷ Korek would eventually secure financial resources from Orange, of France, and Kuwaiti logistic company Agility, which together agreed to purchase a 44 percent stake in March 2011.¹⁹⁸

By May 2010, among the three existing national licensees, Zain's subscriber share had declined, but it was about 48 percent, while Asiacell had about 38 percent and Korek had about 12 percent of the national subscriber market (with Kurdish operator SanaTel holding just over 2 percent).¹⁹⁹

Also in May 2010, the government approved plans to auction a fourth mobile license (in which the government would hold a 35 percent revenue share).²⁰⁰ The Ministry of Communications later announced plans to hold the auction in the first quarter of 2011.²⁰¹ The proposed structure later changed to reduce the offer to a 40 percent share of the fourth licensee, which would be allocated to the winning bidder, with 35 percent to be offered to the public through an initial public offering and 25 percent to be held by the Ministry of Communications – and the proposed timing of the auction was pushed back to the first quarter of 2012 – with the government hoping to raise about USD 2 billion in the auction.²⁰²

In August 2011, the new government that formed after the 2010 elections reportedly decided to demand that Zain, Asiacell, and Korek pay USD 2.85 billion in license fees and fines within a month (roughly USD 803 million for Zain, USD 768 million for Korek, and USD 625 million for Asiacell).

These sums represented the balance of their 2007 license fees, which were to be paid over five years, but the new government claimed that the deferred payment arrangements approved by the previous government were unlawful.²⁰³

In November 2012, the government began publicly discussing the terms of issuing “3G concessions,” hoping to raise at least USD 3 billion for each. The existing licensees responded that they had been issued technology neutral licenses in 2007 and that all they needed was additional spectrum to support 3G or 4G broadband rollout. The licensees also argued that they should be licensed additional spectrum without paying additional license fees.²⁰⁴ Nearly a year later, the government was still deliberating over the structure of its 3G auction, hinting that it would authorize a fourth entrant.²⁰⁵ In May 2014, the government reportedly agreed to assign each incumbent 15 Megahertz (MHz) of spectrum in the 2100 MHz band for 3G use.²⁰⁶ In October 2014, the government asked them to pay USD 307 million each for the 3G spectrum, leading them to object because their licenses only had eight years remaining and, by this time, the ISIL incursion was disrupting their businesses.²⁰⁷ Shortly thereafter, the three incumbent mobile operators accepted the government's proposal and agreed to pay the USD 307 million asking price for 3G spectrum, making a USD 73 million down payment and paying the remainder in four instalments over 18 months.²⁰⁸

By 2013, the market had become more balanced, with Zain facing stronger competition. Its market share had declined to 53 percent in 2013, while Asiacell had grown to 31 percent and Korek had reached 16 percent.²⁰⁹

197 See “Iraq’s Cabinet Approves Plan to Auction Fourth Mobile Phone Licence,” *Connectivity Business* (May 23, 2010), <https://connectivitybusiness.com/news/iraqs-cabinet-approves-plan-auction-fourth-mobile-phone-licence/>.

198 See “France Telecom, Agility Ink Agreement to Acquire 44% Stake in Korek,” *CommsUpdate* (TeleGeography, Washington, DC, March 14, 2011), <https://www.commsupdate.com/articles/2011/03/14/france-telecom-agility-ink-agreement-to-acquire-44-stake-in-korek/>.

199 See “Iraq to Award Fourth Mobile Licence in Q1 2011,” *CommsUpdate* (TeleGeography, Washington, DC, October 7, 2010), <https://www.commsupdate.com/articles/2010/10/07/iraq-to-award-fourth-mobile-licence-in-q1-2011/>.

200 See “Iraq’s Cabinet Approves Plan to Auction Fourth Mobile Phone Licence,” *Connectivity Business* (May 23, 2010), <https://connectivitybusiness.com/news/iraqs-cabinet-approves-plan-auction-fourth-mobile-phone-licence/>.

201 See “Iraq to Award Fourth Mobile Licence in Q1 2011,” *CommsUpdate* (TeleGeography, Washington, DC, October 7, 2010), <https://www.commsupdate.com/articles/2010/10/07/iraq-to-award-fourth-mobile-licence-in-q1-2011/>.

202 See “Auction of Fourth Mobile Licence to Take Place in Early 2012,” *CommsUpdate* (TeleGeography, Washington, DC (October 27, 2011), <https://www.commsupdate.com/articles/2011/10/27/auction-of-fourth-mobile-licence-to-take-place-in-early-2012/>.

203 See “Mobile Operators Asked to Pay USD2.85bn in Licence Fees, Fines,” *CommsUpdate* (TeleGeography, Washington, DC, August 12, 2011), <https://www.commsupdate.com/articles/2011/08/12/mobile-operators-asked-to-pay-usd2-85bn-in-licence-fees-fines/>.

204 See “Govt Slaps USD3bn Price-Tag on 3G Licences,” *CommsUpdate* (TeleGeography, Washington, DC, November 5, 2012), <https://www.commsupdate.com/articles/2012/11/05/govt-slaps-usd3bn-price-tag-on-3g-licences/>.

205 See “Iraqi 3G Auction Likely to Include Fourth National Operating Concession,” *CommsUpdate* (TeleGeography, Washington, DC, September 23, 2013), <https://www.commsupdate.com/articles/2013/09/23/iraqi-3g-auction-likely-to-include-fourth-national-operating-concession/>.

206 See “Iraqi Government Approves Distribution of 3G Frequencies,” *CommsUpdate* (TeleGeography, Washington, DC, May 6, 2014), <https://www.commsupdate.com/articles/2014/05/06/iraqi-government-approves-distribution-of-3g-frequencies/>.

207 See “Govt. Demands USD307m for 3G Spectrum,” *CommsUpdate* (TeleGeography, Washington, DC, October 15, 2014), <https://www.commsupdate.com/articles/2014/10/15/govt-demands-usd307m-for-3g-spectrum/>.

208 See “Trio to Cough Up USD307m for 3G Licences,” *CommsUpdate* (TeleGeography, Washington, DC, November 7, 2014), <https://www.commsupdate.com/articles/2014/11/07/trio-to-cough-up-usd307m-for-3g-licences/>.

209 “Telecommunication Companies in Iraq & Kurdistan” (Marcopolis, Paris, 2013), <https://marcopolis.net/telecommunication-companies-in-iraq-a-kurdistan-telecom-list.htm>.

By 2018, the mobile market was beginning to stabilize, with Zain at 39 percent market share, Asiacell at 34 percent, and Korek at 19 percent. All three offered 3G service.²¹⁰ Although the government recently agreed to renew their licenses, which were set to expire in 2022, renewal was blocked by an Iraqi court over claims of corruption and anti-competitive behavior.²¹¹

Kurdistan also developed a regional mobile market. Although mobile networks had been prohibited in Iraq by Saddam Hussein's regime, the Kurdistan Regional Government had exercised its autonomy to issue regional licenses to Asiacell and Korek in 1999 and 2000, respectively. When the CPA established the CMC, the new regulator formalized the Kurdistan regional licenses previously issued to Asiacell and Korek, extending their GSM operating permission to all of Iraq.²¹² Kurdistan continued as the more progressive region of Iraq's telecom sector, awarding regional licenses to Mobitel to provide 2G and 3G services in 2007 and a 4G license to Fastlink in 2013. The latter thus became the first operator to launch 4G services in Iraq.²¹³ Kurdistan is home to about 17 percent of Iraq's population, however, so its separate regional market did not materially impact the overall evaluation of Iraq's internal business climate factors.

Iraq never enacted a modern telecom law during the conflict period or in the post-conflict period ending in 2020. One result is that the Ministry of Communications and the CMC have overlapping and potentially conflicting mandates and authority over the sector.²¹⁴ The state has retained a monopoly over fixed services, held by the state-owned Iraqi Telecommunication and Post Company (ITPC), including all terrestrial fiber network investment. As an apparent consequence, Iraq has the highest regional disparity between mobile penetration and broadband subscriptions.²¹⁵ In 2012, soon after the end of the conflict period, Qatar-based Gulf Bridge International landed a

submarine fiber optic cable system, in cooperation with ITPC, to connect Iraq with Qatar, the United Arab Emirates, the Islamic Republic of Iran, Kuwait, Bahrain, Oman, and Saudi Arabia in a ring configuration and to connect onward to Mumbai and Sicily.²¹⁶ Also in 2012, Reliance Globalcom connected Iraq to its FALCON submarine cable system, at a landing station built in partnership with ITPC, providing connectivity from Iraq to all the countries in the Middle East region and onward connectivity to the rest of the world.²¹⁷

The 2007 licenses also imposed requirements on the three licenses to list at least 25 percent of their shares on the Iraq Stock Exchange. In 2013, Asiacell, majority owned by Qatar's Ooredoo, successfully floated USD 1.27 billion in shares on the exchange, valuing the company at USD 4.95 billion.²¹⁸ The process of undertaking and completing these listings proved more difficult for Zain and Korek.²¹⁹ Both Zain and Korek faced administrative difficulties in floating shares, including the requirement to be registered as a joint stock company rather than a limited liability company, proof of profitability, and clearance from tax authorities. Korek, as a smaller company primarily located (and with a tax residence) in Kurdistan, found the administrative requirements particularly challenging.²²⁰

Although it is outside the scope of impacts assessed in this study, the invasion of Iraq by ISIL forces in 2013 and the subsequent conflict caused another round of adverse impacts on Iraq's telecom sector. Other issues also arose following the 2003–11 conflict. For example, in October 2020, Orange brought an expropriation claim against the Iraqi government before the World Bank Group's International Centre for the Settlement of Investment Disputes (ICSID). Orange alleged that the Iraqi state breached international trade agreements by refusing Orange and its Kuwaiti partner, Agility, the ability to challenge the ruling of sector regulator CMC, which they claimed had denied them their equity investment

210 See World Bank, "Mashreq 2.0: Digital Transformation for Inclusive Growth and Jobs" (World Bank, Washington, DC, 2018), 28, <https://documents1.worldbank.org/curated/en/246561561495359944/pdf/Mashreq-2-0-Digital-Transformation-for-Inclusive-Growth-and-Jobs.pdf>.

211 J. Barton, "Iraqi Court Blocks Licence Renewals over Corruption Allegations," *Developing Telecoms* (November 16, 2020), <https://www.developingtelecoms.com/telecom-business/telecom-regulation/10293-iraqi-court-blocks-licence-renewals-over-corruption-allegations.html>.

212 Invest in Group, "Plugging In: Telecom and Internet," *Kurdistan Region Review* (October 2013), <https://investinggroup.org/review/242/plugging-in-telecom-and-internet-kurdistan/#:~:text=The%20Kurdistan%20Region%E2%80%99s%20telecom%20industry%20is%20largely%20dominated,with%2010%20million%20and%204.8%20million%20subscribers%2C%20respectively.>

213 P. Bell, "Iraq and Roll: Telecoms in Kurdistan," *TeleGeography* (October 16, 2017), <https://blog.telegeography.com/iraq-and-roll-telecoms-in-kurdistan>.

214 World Bank, "Mashreq 2.0: Digital Transformation for Inclusive Growth and Jobs" (World Bank, Washington, DC, 2018), 28, <https://documents1.worldbank.org/curated/en/246561561495359944/pdf/Mashreq-2-0-Digital-Transformation-for-Inclusive-Growth-and-Jobs.pdf>.

215 See World Bank, "Mashreq 2.0: Digital Transformation for Inclusive Growth and Jobs," (World Bank, Washington, DC, 2018), 7, 21, <https://documents1.worldbank.org/curated/en/246561561495359944/pdf/Mashreq-2-0-Digital-Transformation-for-Inclusive-Growth-and-Jobs.pdf>.

216 See "GBI lands Submarine Cable in Iraq," *CommsUpdate* (TeleGeography, Washington, DC, January 18, 2012), <https://www.commsupdate.com/articles/2012/01/18/gbi-lands-submarine-cable-in-iraq/>.

217 See "Reliance Hooks Up Iraq to Cable System," *CommsUpdate* (TeleGeography, Washington, DC, July 3, 2012), <https://www.commsupdate.com/articles/2012/07/03/reliance-hooks-up-iraq-to-cable-system/>.

218 Reuters, "Qatar Telecom Now Owns 64.1% of Asiacell," *Arab News* (February 5, 2013), <https://www.arabnews.com/economy/qatar-telecom-now-owns-641-asiacell>.

219 See "Zain IPO Delayed Again; Now Anticipated by End-2013," *CommsUpdate* (TeleGeography, Washington, DC, April 16, 2013), <https://www.commsupdate.com/articles/2013/04/16/zain-ipo-delayed-again-now-anticipated-by-end-2013/>.

220 See Sneha Abraham, "Iraq Poses Difficult Challenges" *Middle East Business Intelligence* (October 6, 2014), <https://www.meed.com/iraq-poses-difficult-challenges/>. See also "Interview with Ghada Gebara, CEO of Korek Telecom," in *Kurdistan Region of Iraq Report* (MacroPolis, February 22, 2013), <https://marcopolis.net/korek-telecom-an-iraqi-telecom-with-nationwide-coverage.htm>.

in Korek.²²¹ However, the tribunal that convened in the arbitration rejected Orange's claim on jurisdictional grounds.²²²

3.2 Assessment of internal Iraqi telecom investment climate factors

Five internal factors during the conflict and after that impacted the climate for mobile market investment in Iraq were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

Iraq: Market open to entry?

Prior to 2003, public mobile networks were illegal in Iraq (except in Kurdistan) and no national commercial operator had been licensed. The CPA acted quickly to issue interim licenses. Asiacell, Atheer, and Orascom were issued two-year interim GSM licenses in 2003 to provide nationwide mobile service and, following the handover of control, were routinely granted extensions by the new Iraqi government until long-term licenses could be issued. The government issued three 15-year licenses in 2007 through a competitive auction process, two of which were won by the original incumbents and one of which was won by a new entrant from Kurdistan. The government later considered licensing a fourth entrant, but apparently concluded that the market would not support a fourth national operator.

There have been rumors of issues arising over renewal of the licenses in 2020, but as this occurred well after the end of the 2003–11 conflict period, it had no impact on the evaluation of market openness during the conflict period. Iraq successfully introduced three national investor-owned rival mobile networks and some additional regional rivals. Iraq was assigned a *favorable* rating for openness to mobile market entry during the conflict period.

Iraq: Ease of private investment?

A March 2004 CPA order quickly established a favorable framework for private investment in mobile networks, enabling Iraq to attract and retain three investor-owned mobile operators that invested extensively in building out national networks.

Although they were permitted to build their own radio access networks, Iraq's new mobile operators faced other investment barriers. Following the handover of governing authority by the CPA in June 2004, Iraq's new government was slow to adopt a new telecom law to replace the CPA's earlier order and still had not done so by the time the coalition forces withdrew in December 2011.²²³ This resulted in Iraq being without a working telecom law for all but three months during the conflict period – with mobile licenses serving as the primary sources of mobile operator rights and obligations. For example, some mobile licensees faced issues around the requirement in their licenses that they list at least 25 percent of their shares on the Iraq Stock Exchange.

The legacy legal framework also preserved a state monopoly over fiber optic fixed infrastructure and the international gateway, hampering the ability of mobile operators to invest in their own fiber backhaul and international capacity required for broadband service.²²⁴ Combined with the delay in releasing broadband spectrum bands (discussed below), this forced the three mobile operators to invest in 2G rather than 3G or 4G technology when building out their networks, although they were well-financed and the Gulf states region is known for aggressive mobile broadband build-outs. One apparent cause of these shortcomings in the investment framework was lack of a clear allocation of responsibilities between the sector ministry and the sector regulator.²²⁵

Iraq was assigned an *uncertain* rating for ease of private investment in mobile networks during the 2003–11 conflict period, balancing the relative openness to private investments in mobile radio access networks with the difficulties of local listing requirements and the restrictions on private investment in backhaul fiber and international capacity.

221 See "Orange Launches Arbitration against Iraqi Government," CommsUpdate (TeleGeography, Washington, DC, October 15, 2020), <https://www.commsupdate.com/articles/2020/10/15/orange-launches-arbitration-against-iraqi-government/>.

222 See "International Tribunal Rejects Korek Telecom Case," CommsUpdate (TeleGeography, Washington, DC, February 24, 2021), <https://www.commsupdate.com/articles/2021/02/24/international-tribunal-rejects-korek-telecom-case/>.

223 GSMA, "Green Paper on Iraq Draft Telecommunications Laws" (summarizing recommendations of multi-stakeholder expert workshop on Iraq's proposed legal framework) (GSMA, London, April 2018), <https://www.gsma.com/mena/wp-content/uploads/2018/11/Green-Paper-on-Iraq-Draft-Telecom-Laws-Final.pdf>.

224 See, for example, Hussein Al Bayati, "It's Time for Iraq to Seriously Invest in Internet Infrastructure" (Iraq Energy Institute, London, June 9, 2019), <https://iraqenergy.org/2019/06/09/business-perspectives-part1-internet-infrastructure-iraq-stock-market-modernisation/>.

225 See GSMA, "Green Paper on Iraq Draft Telecommunications Laws" (GSMA, London, April 2018), 7, 21, <https://www.gsma.com/mena/wp-content/uploads/2018/11/Green-Paper-on-Iraq-Draft-Telecom-Laws-Final.pdf>.

Iraq: Spectrum needs met?

Operators in Iraq were able to source 2G spectrum during the conflict period, beginning with short-term 2G licenses issued in late 2003. Spectrum prices for the three national operators were set in an open and transparent auction process in 2007 through which the successful licensees bid more than four times the government's reserve price. After being outbid in the auction, Orascom's ability to sell its existing assets to Zain for USD 1.2 billion in 2007 suggests that it had built a vibrant business with its spectrum allocation during 2003–07. Mobile penetration had reached 90 percent by 2011, when the conflict period ended.

Availability of mobile broadband spectrum was ultimately delayed by the new government's inexperience, political divisions, and limited capacity. Spectrum policy also appeared more focused on raising revenue than supporting mobile market development. In 2010, the government was making plans to auction a fourth mobile license, even as it had not yet announced plans to license broadband (3G or 4G) spectrum. While plans to auction a fourth license were eventually abandoned, 3G spectrum was not released until November 2014, some seven years after the 2G auctions. Although these developments occurred near the end of the conflict period in 2011, the delay in releasing spectrum required for mobile broadband forced mobile operators to deploy 2G equipment at a time when they may have instead deployed 3G or 4G equipment, thereby delaying the availability of mobile broadband in Iraq.

Iraq was therefore assigned an *uncertain* score for meeting mobile spectrum needs during the conflict period due to the delayed release of the bands required for broadband. Since the end of the conflict in 2011, the government's handling of spectrum needs, in terms of both renewing existing licenses and releasing additional spectrum, has continued to neglect mobile market performance and would likely be considered unfavorable if those later years were evaluated for this study.

Iraq: Level playing field?

The CPA acted quickly to establish the CMC as an independent regulator in 2004 and the 2007 licensing process appears to have been both transparent and fair. Regulatory actions taken through 2011 also appear to have been reasonable and balanced. Gradual convergence of market shares toward a balanced market during 2003–11 is further evidence of relatively effective competition in which all three national mobile operators were able to compete for new customers and churning customers. Iraq was assigned a *favorable* score for level playing field in its mobile retail market during the conflict period.

Iraq: Fiscal reasonableness?

During the conflict period, Iraq's tax system was governed under a 2004 CPA order.²²⁶ The order amended the existing Iraqi tax system to establish a flat 15 percent corporate income tax and personal income taxes at relatively low rates with a range of exemptions. During the 2003–11 conflict period, Iraq's general corporate tax burden was low, and it had no sector-specific telecom taxes.

Faced with mounting budget pressures, in 2015 Iraq introduced new taxes designed to reduce budget shortfalls, including a 20 percent surtax on mobile telephone services and internet subscriptions. A 2017 report by the International Monetary Fund observed that these revenue sources were necessary to replace petroleum revenue, which had historically generated 90 percent of government receipts but had declined due to the global fall in oil prices since 2013.²²⁷ The impact of this sector-specific tax was not considered in the evaluation because it occurred after 2011.

However, ITPC, a state-owned enterprise, held a monopoly over terrestrial fiber infrastructure and international connectivity throughout the 2003–11 conflict period. This state holding enabled the government to extract additional nontax revenues from mobile operators by imposing high wholesale prices on international connectivity (which was a significant revenue source at the time due to the large volume of international voice traffic generated by foreign military personnel, private contractors, and international donor staff) and domestic backhaul (which was a less significant revenue source at the time because most mobile traffic was voice and text).²²⁸

226 L. Paul Bremer, Administrator, Coalition Provisional Authority Order No. 49, Tax Strategy of 2004 (February 19, 2004), https://govinfo.library.unt.edu/cpa-iraq/regulations/20040220_CPAORD_49_Tax_Strategy_of_2004_with_Annex_and_Ex_Note.pdf.

227 See Csaba Feher et al., Iraq: Selected Issues, IMF Country Report No. 17/252 at 16–25 (International Monetary Fund, Washington, DC, July 25, 2017), 16–25, <https://www.imf.org/-/media/Files/Publications/CR/2017/cr17252.ashx>.

228 Iraq Business News, "High Costs Hamper Iraqi Telecoms" (May 6, 2011), <https://www.iraq-businessnews.com/2011/05/06/high-costs-hamper-iraqi-telecoms/3/>.

Fiscal predictability was reasonable in Iraq throughout the 2003–11 conflict period. Notwithstanding potential fiscal drag from the ITPC monopoly, Iraq was assigned a *favorable* score based on its low general taxes, absence of sector-specific taxes, and reasonable fiscal predictability during the conflict period, as summarized in table 7.

Table 7: Iraq: Fiscal reasonableness determination

IRAQ: FISCAL REASONABLENESS, 2001–11			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
15% corporate income tax	None during period 20% telecom tax instituted in 2015 (after the reviewed period)	Fixed state-owned enterprise monopoly resulting in high wholesale prices	Reasonable
Iraq overall rating: Favorable			

Source: World Bank.

Table 8: Iraq: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Open entry to market	2	2003, Asiacell, Atheer, and Orascom issued two-year GSM licenses, which were renewed through 2007 2007, Asiacell, Korek, and Zain issued 15-year Global System for Mobile Communications licenses
Ease of private investment	1	2004, provisional government issued order to develop sector Legal restrictions on competitive fiber investment Restrictive type approval regulation
Spectrum needs met	1	3G and 4G available early in Kurdistan but delayed elsewhere High spectrum costs
Level playing field	2	2004, provision establishes the Communication and Media Commission as independent regulator
Fiscal reasonableness	2	No telecom-specific taxes during the study period State-owned enterprise monopoly fixed operator resulting in fiscal drag
All	8	

Source: MacMillan Keck.

Iraq: Summary of key findings across all the internal factors

Table 8 summarizes the scoring of the five internal factors impacting Iraq’s telecom investment climate during the 2003–11 conflict period. It also offers the key facts that led to the score for each factor.

3.3 Assessment of external Iraqi telecom investment climate factors

Five external factors during the 2003–11 conflict period that impacted the climate for mobile market investment in Iraq were assessed: (1) military interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings across all the external factors.

Iraq: Military or paramilitary interference?

After the initial US-led invasion ended (within about six months), Iraq faced no formal military blockades or foreign military interference during the 2003–11 conflict period. However, removal of the Ba’athist regime created a power vacuum in the border regions. The Iraq-Syria border became a jihadi stronghold, even before the ISIL incursion. In addition, the Baghdad-Trebil highway, which was used for 40 percent of Iraq’s land trade at the time, became too dangerous to pass because of al-Qaeda activities.²²⁹

Due to fragility and conflict on the Iraq-Syria border and the main land trade route, Iraq received an *uncertain* rating for military or paramilitary interference.

Iraq: International sanctions?

Before the conflict, the UN Security Council had imposed an embargo on Iraq in various forms from 1990 to 2003.²³⁰ Following the invasion of Iraq in 2003 and the fall of the regime, the UN Security Council largely lifted the embargo in May 2003, with limited exceptions for arms sales and payments for petroleum.²³¹ There were no other broad sanctions imposed by the international community during the remainder of the conflict period.

Iraq received a *favorable* rating on international sanctions during the 2003–11 conflict period.

Iraq: Travel restrictions?

As part of the aftermath of the 1991 Gulf War and resulting sanctions, international travel to Iraq was severely restricted before the 2003 invasion. All commercial flights into Iraq were suspended during the period of active combat, which quickly ended, and until Iraq’s airspace could be secured by the coalition forces. In October 2004, national carrier Iraqi Airways resumed commercial flights to Jordan. It was soon followed by multiple other carriers in the Gulf and Middle East region offering flights to capital cities and onward intercontinental travel. Direct intercontinental flights to Iraq were slower to resume, however, in part as a hangover of the earlier sanctions. In October 2010, a French airline operated the first European scheduled flight to Iraq since 1990.²³²

The flights available and lack of any travel restrictions or border closures from mid-2003 were sufficient for the mobile operators and their investors to establish and build their businesses during the conflict period without any undue limitations on necessary travel.

There were no travel restrictions or border closures imposed by other countries that were likely to impact the inbound and outbound travel of telecom operator executives or vendor technicians.

Iraq received a *favorable* rating for travel restrictions during the 2003–11 conflict period.

Iraq: International aid for telecommunications?

Iraq received substantial international assistance for reconstruction of its telecom sector during the coalition-led occupation.

The United States Agency for International Development (USAID) funded various efforts to restore the country’s communications infrastructure, including assessing the routes and condition of the state-owned terrestrial fiber optic cable, performing emergency repairs, providing necessary tools and equipment, and installing a satellite gateway system to restore international calling service in 2003. In 2005, USAID installed new fiber optic connections to complete the USD 70 million project connecting the Ministry of Electricity to the Iraqi Telephone and Postal Company’s fiber optic network, which ultimately served to reduce blackouts and disruptions in the grid system.²³³

229 Hariith Hasan and Kheder Khaddour, *The Transformation of the Iraqi-Syrian Border: From a National to a Regional Frontier* (Carnegie Middle East Center, Beirut, Lebanon, March 31, 2020), https://carnegieendowment.org/files/Hasan_Khaddour_Iraq-Syria_Border2.pdf.

230 UN Security Council Resolution 661 (United Nations, New York, 1990), <http://unscr.com/en/resolutions/661>.

231 UN Security Council Resolution 1483 (United Nations, New York, 2003), <http://unscr.com/en/resolutions/1483>.

232 Delphine Toutou, “French Airline to Fly to Iraq Again,” Blog Post (Skyscraper City Forum, 2010), <https://www.skyscrapercity.com/threads/iraq-aviation-sector.1091379/page-8#post-66057317>.

233 “Reconnecting Iraq: Telecommunications – Iraq.” ReliefWeb (June 16, 2006), <https://reliefweb.int/report/iraq/reconnecting-iraq-telecommunications>.

The UN Assistance Mission for Iraq was established in 2003.²³⁴ Its mandate was greatly expanded in 2007 to include facilitating economic reform, capacity building, and setting conditions for sustainable development and recovery and reconstruction.²³⁵

The World Bank Group also provided significant financial assistance to Iraq’s telecom sector. These projects included rehabilitating the microwave network in Iraq and USD 65 million in financing for construction of the Iraq Inter-Banking Network, which connected all 52 banks in Iraq.²³⁶ In 2011, the International Finance Corporation provided Zain a USD 155 million loan as part of a larger USD 400 million syndicated loan facility for improvements to its mobile network.²³⁷ Iraq received a *favorable* rating for international aid for telecommunications during the conflict period.

Iraq: International security intervention?

International efforts were strengthened to try to improve the security in the country which deteriorated in the aftermath of the US led invasion. Consequently, the US had to significantly increase security operations in the country. The US-led occupying forces provided security operations in the country. The United States had a combat mission in Iraq for seven years between 2003 and 2010. Even after the last US troops left Iraq, US military advisors and trainers remained to provide support and assistance to the local government, though could not guarantee security.²³⁸

Though contested, for the purpose of this report Iraq received a *favorable* rating for international security intervention.

Iraq: Summary of key findings across all the external factors

Table 9 summarizes the scoring of the five external factors impacting Iraq’s telecom investment climate during the 2003–11 conflict period. It also offers the key relevant facts that led to the score for each factor.

Table 9: Iraq: Assessment of external factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Military interference	1	No formal military blockades but al-Qaeda controlled some parts of border and main trade route
International sanctions	2	No broad US, EU, or UN sanctions
Travel restrictions	2	Security-related travel restrictions
International aid for telecommunications	2	Substantial USAID assistance for telecom reconstruction World bank assistance
International security intervention	2	Extensive security provided by US-led occupying forces UN Assistance Mission established in 2003, expanded in 2007
All	9	

Source: MacMillan Keck.

Note: UN = United Nations; USAID = United States Agency for International Development.

234 UN Security Council Resolution 1500 (United Nations, New York, 2003), <http://unscr.com/en/resolutions/1500>.
 235 UN Security Council Resolution 1770 (United Nations, New York, 2007), <http://unscr.com/en/resolutions/1770>.
 236 World Bank, "Information and Communication Technologies: Results Profile" (April 13, 2013), www.worldbank.org/en/results/2013/04/13/ict-results-profile.print.
 237 See IFC (International Finance Corporation), "IFC-Led Financing for Zain Iraq to Improve Telecoms Services, Support Growth in Iraq" (IFC, Washington, DC, March 1, 2011), <https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=22518>. See also "Zain Receives USD400m IFC Debt Facility," CommsUpdate (TeleGeography, Washington, DC, March 2, 2011), <https://www.commsupdate.com/articles/2011/03/02/zain-receives-usd400m-ifc-debt-facility/>.
 238 United States Institute of Peace, Iraq Timeline: Since the 2003 War (United States Institute of Peace, Washington, DC, May 29, 2020), www.usip.org/iraq-timeline-2003-war.

3.4 Iraq's projected and actual teledensity evolution

The following passages assess and analyze Iraq's projected and actual mobile teledensity evolution during the 2003–11 conflict period. The post-conflict period from 2012 through 2020 is discussed further below.

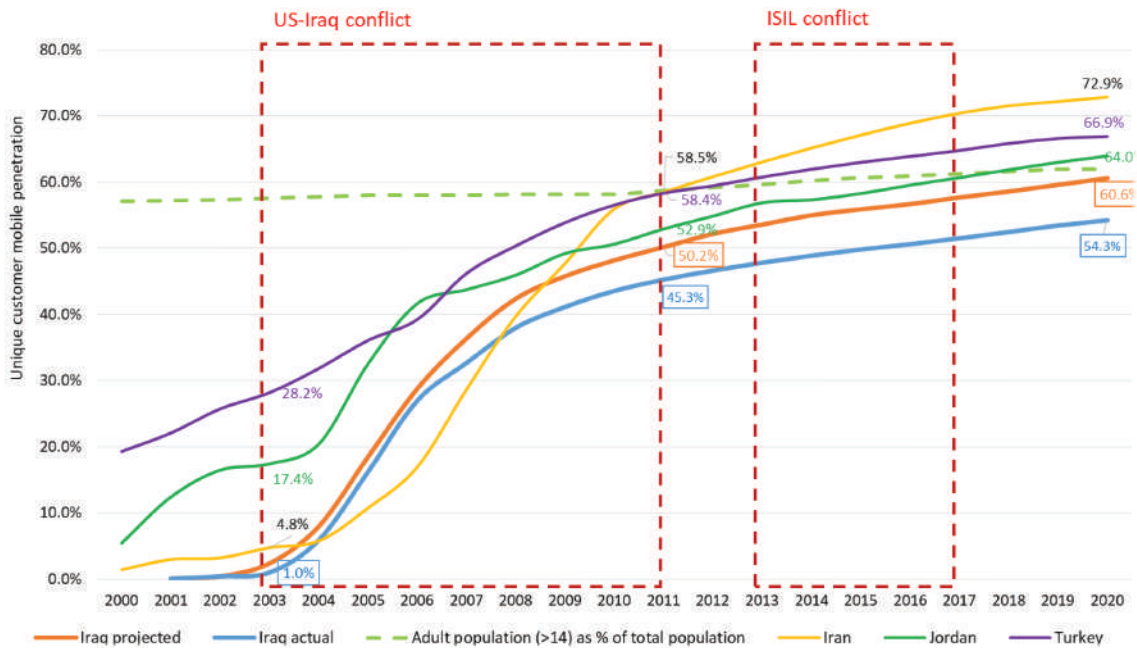
Iraq's unique subscriber mobile penetration

Iraq's mobile penetration is presented from 2000 through 2020 and assessed in detail for the 2003–11 conflict period. The results are shown in figure 10. The Islamic Republic of Iran, Jordan, and Turkiye were compared as a peer group for benchmarking Iraq's progress. The adult-age (15+) population (green dashed line in figure 10) serves as a potential invisible upper bound on unique customer mobile penetration.

The projected growth in the but-for-the-conflict scenario was modeled to represent a reasonable basis for what could have transpired absent the conflict, with realistic improvements in the investment environment and the earlier stimulation of market growth. The projected but-for-the-conflict growth in Iraq is similar to the profiles of Turkiye and Jordan. The projection anticipated that 4G would have been introduced around 2015, neighboring Islamic Republic of Iran (2014), Turkiye (2015), and Jordan (2016) all launched well before the launch of national 4G service in Iraq (2021).

Iraq's but-for-the-conflict mobile penetration projection (orange line in figure 10) closely tracks actual penetration (with very little differential) until 2007, after which actual penetration line begins falling further behind projected but-for-the-conflict penetration. There is clear evidence of retarded actual penetration growth from 2007 onward, especially when Iraq's performance is compared with its immediate neighbors. The primary conflict period, from 2003 to 2011, exhibits growth in unique mobile subscriber penetration in Iraq that is largely similar to its peers, especially over the period from 2006 to 2011.

Figure 10: Iraq's unique subscriber mobile penetration, 2000–20



Source: MacMillan Keck.

Note: ISIL = Islamic State of Iraq and the Levant.

The but-for-the-conflict projection is similar to the case of Afghanistan because mobile penetration was also very low (1 percent) when the conflict began in 2003. However, mobile services were already reasonably well developed in Jordan and Turkiye, with the Islamic Republic of Iran showing signs of slow growth, having begun service three years earlier. Iraq quickly overtook the Islamic Republic of Iran and remained there despite the conflict until 2009 as the Iranian market growth accelerated in a competitive environment. Iraqi mobile penetration was modeled using a standard S-curve model, which tracked the average growth of its peers from 2009 and ends at just below the notional bound of the adult population (62 percent).

Again, the projection was constructed by mapping estimated penetration on an annual basis and ensuring that year-on-year increases followed a smooth and declining trend as would be expected in normal development conditions. This is the normal business modeling method for projecting market growth using a top-down approach, factoring in the delayed launch of 4G services, which would have provided greater growth impetus.

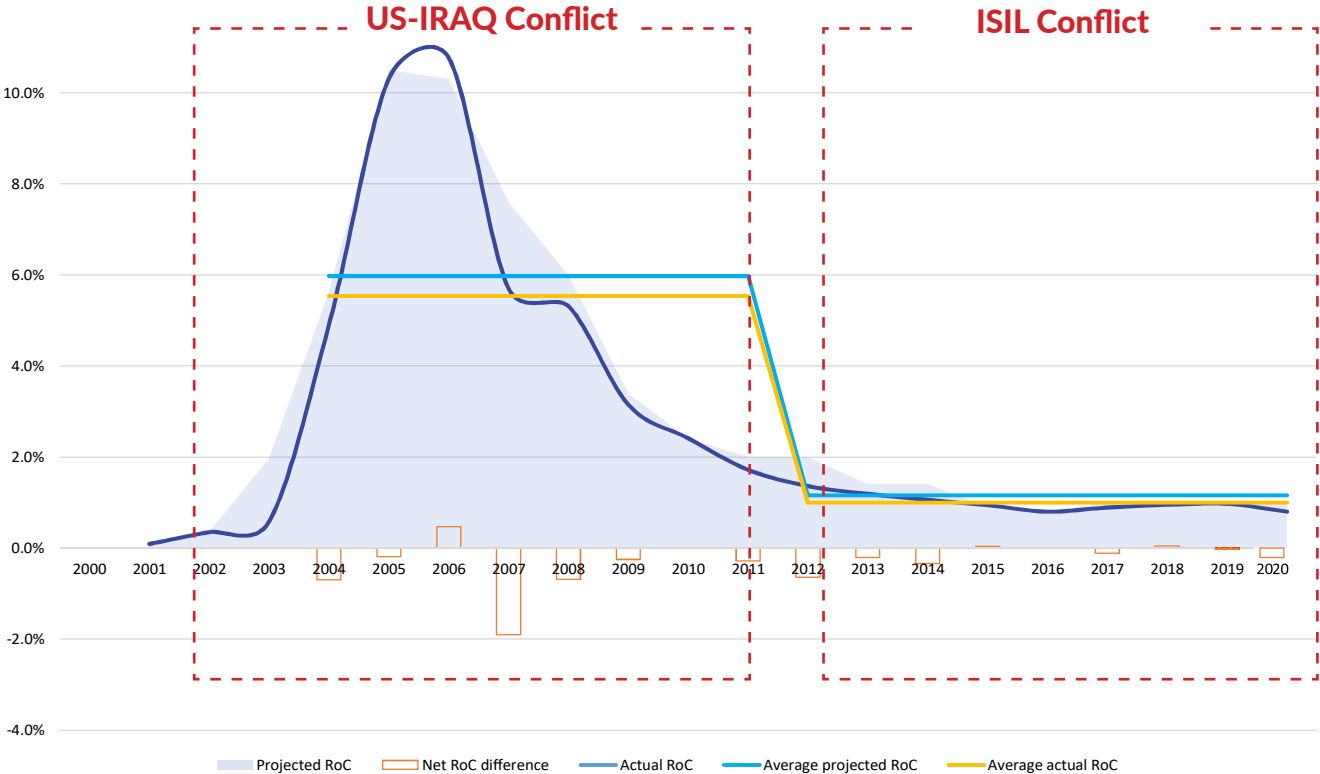
The projection curve follows a steep S-curve to 2008, with steady growth thereafter, resulting in a penetration increase of 4.93 percentage points over actual penetration by 2011. The projection does not exceed the notional limit (adult population of 62 percent), but it does begin to approach this level. Iraq’s neighbors were all approaching this notional limit by 2020: the Islamic Republic of Iran, at 72.9 percent penetration with an adult population of 75 percent; Turkiye, at 66.9 percent penetration with an adult population of 76 percent; and Jordan, at 64.0 percent penetration with an adult population 66 percent.

Iraq benefitted from early action by the CPA, including issuance of two-year GSM licenses to Asiacell, Atheer, and Orascom in 2003. The new self-determined government issued 15-year GSM 2G licenses in 2007. Benefiting from extensive international technical assistance, Iraq also adopted pro-development telecom policies and established an independent regulator in the early years of the conflict.

Iraq’s mobile penetration growth rate

Iraq’s mobile penetration growth rate (which is the year-on-year rate of change in penetration) is also presented for the period from 2000 through 2020 and assessed for the 2003–11 conflict period. The results are shown in figure 11.²³⁹

Figure 11: Iraq’s mobile penetration growth rate, 2000–20



Source: MacMillan Keck.
 Note: ISIL = Islamic State of Iraq and the Levant; RoC = Rate of Change.

Due to the unique nature of the conflict in Iraq, where the foreign invasion and removal of the prior regime were short-lived and followed by a lengthy period of occupation and peacekeeping, the adverse impact of the conflict on market performance was relatively minimal. Iraq experienced tremendous subscriber growth through 2005/2006, but then growth rates began to decline through the end of the conflict in 2011, after power was transferred back to the country’s self-determined government.

²³⁹ Penetration rates below 1 percent were disregarded due to the unreliability of data at this nascent stage of development.

3.5 Correlating Iraq's supply-side investment climate and teledensity

The assessment of Iraq can inform an overall view of the relationship between the supply-side telecom investment climate and teledensity evolution in Iraq during the conflict.

Iraq was assessed as having an internal factor investment climate rating of 8 and an external factor investment climate rating of 8. Key internal factors included (1) prompt issuance of interim licenses, (2) adoption of a provisional decree to establish sector rules ahead of adoption of a formal telecom law, and (3) establishment of an independent provisional telecom sector regulator ahead of adoption of a formal telecom law. Key external factors included (1) lifting or relaxation of pre-conflict sanctions after the US-led intervention, (2) facilitation of equipment imports by the occupying coalition, (3) significant foreign aid from the United States and the World Bank, and (4) extensive external security assistance.

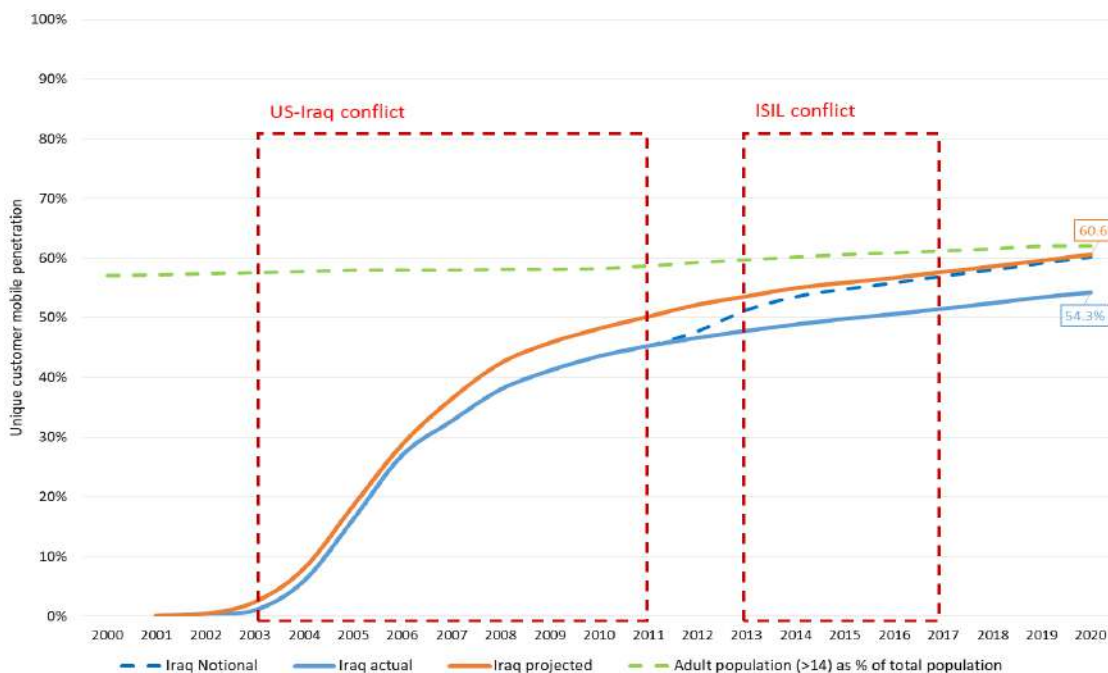
Iraq's actual average annual teledensity growth rate suffered a 7.4 percent decline compared with its projected but-for-the-conflict teledensity growth rate. After Afghanistan, which faced similar circumstances in terms of the impact of military occupation, Iraq experienced the second lowest growth rate deficit among all seven countries studied. Thus, despite having limited telecom infrastructure at the onset of the conflict in 2003, by 2011, Iraq was achieved unique mobile subscriber penetration of 45.3 percent, equal to about 83 percent of the adult population.

3.6 Iraq's post-conflict performance

Iraq's conflict was resolved in 2011, well before 2020, the final teledensity measurement year covered in these case studies. This makes Iraq unique among the countries studied as having the only significant post-conflict period and therefore the only country where post-conflict teledensity evolution and its potential causes can also be studied.

Although Iraq incurred a teledensity growth rate deficit during the eight years of conflict, and accordingly ended the period with lower actual mobile subscriber penetration than may have been reached but-for-the-conflict, it may have been expected that Iraq would have made up for lost time after the conflict. To see how this might have impacted teledensity evolution, the actual and projected mobile subscriber curves for Iraq presented in figure 10 were supplemented by a projected mobile subscriber curve with its inception in 2011 rather than 2003. This set of subscriber penetration curves is shown in figure 12.

Figure 12: Iraq's lost opportunity in post-conflict mobile subscriber penetration, 2011-20



Source: MacMillan Keck.

Note: ISIL = Islamic State of Iraq and the Levant.

The post-2011 projection (shown by the dashed blue curve in figure 12) anticipates an acceleration of teledensity growth immediately after the conflict, followed by a deceleration, and then a gradual convergence of post-conflict teledensity with the teledensity that was originally projected to have been achievable but-for-the-conflict. The conditions for the surge in growth after the 2011 end of the conflict were ripe. Iraq had adopted and implemented positive public institutional reforms during the conflict period and these actions had led to a strong positive response in private investment. The end of the conflict and the withdrawal of occupying forces should have enabled these factors to drive up teledensity to make up for lost time.

Figure 12 reveals that this was not the case. Mobile penetration has not followed the projected post-conflict path based on a 2011 starting point and has actually fallen further behind the projected but-for-the-conflict levels (and the peer country levels shown in figure 10) during the nine years after 2011.

An analysis of Iraq’s penetration in 2003, 2011, and 2020 reveals that Iraq lost ground to all the benchmarked countries (except Turkiye and then only marginally) by 2020. Table 10 illustrates the penetration deficit.

Table 10. Analysis of Iraq’s penetration deficit compared with its peers, 2003, 2011, and 2020

Country	2003	2011	2020
Unique subscriber mobile penetration			
Iraq	1.0%	45.3%	54.3%
Percentage point differential compared with Iraq			
Iran, Islamic Rep.	+3.8	+13.2	+18.6
Jordan	+16.4	+7.6	+9.7
Turkey	+27.2	+13.1	+12.6

Source: MacMillan Keck.

Although the Islamic Republic of Iran’s penetration grew at a slower rate than Iraq’s between 2004 (when it was equal to Iraq) and 2008 (when it again matched Iraq’s penetration), the Islamic Republic of Iran accelerated to 12.3 percentage points higher penetration than Iraq in 2020. This was mainly due to the introduction of competition in the Iranian mobile sector from 2006. All three of the benchmarked peer countries have grown to higher penetration levels than Iraq since 2008.

The research team sought an explanation for Iraq’s disappointing post-conflict performance. Two potential forces appear to have contributed to underperformance but do not fully explain it. First, violence continued to disrupt Iraq after the official end of the conflict in 2011. Second, ISIL’s deep incursion into sovereign Iraqi territory and establishment of a caliphate in 2013 and the ensuing conflict to recapture Iraqi territory and drive out ISIL may have been expected to have had an impact on telecom sector performance. However, the actual timing of the ISIL conflict does not appear to explain the observed sector underperformance. The gap between but-for-the-conflict subscriber penetration and actual subscriber penetration actually widened in the non-conflict period from 2011 through 2013, whereas it remained relatively constant from 2013 through 2017 and began to widen again in 2017. The more significant force in Iraq’s post-conflict underperformance appears to have been increasingly inhospitable internal factors and the difficulties faced by the government in maintaining or fulfilling the reforms undertaken during the conflict.

Licensing has been slow and uncertain, undermining investor confidence. All three national mobile licenses that were issued during the conflict were set to expire in 2022. The Iraqi government in 2020 approved a five-year extension of these licenses, in part to compensate the operators for lost business opportunities during the Islamic State conflict. However, a Baghdad court recently blocked the extension of the existing mobile licenses. An Iraqi politician who brought the suit persuaded the court that the license renewals stemmed from corruption, that the operators in Iraq were not fully competitive, and that preventing the license renewal could open the market to further competition.²⁴⁰ This of course undermines the commitment of the incumbent operators to continue investing in their networks.

Investment barriers have become worse. The state monopoly over fixed services and lack of a modern telecom law persisted through 2020, and have become more of a barrier as the mobile operators need increased middle-mile capacity to support their 3G and 4G rollouts. The current dispute over renewal of existing GSM licenses, if not addressed swiftly, could also undermine investor confidence in the stability of Iraq’s regulatory framework. In addition, two allegations of expropriation by Iraqi authorities involving the telecom sector have been lodged with the ICSID. Both incidents occurred after the withdrawal of US forces in 2011. The first claim, lodged in 2017 by Agility, a Kuwaiti investor in Korek, was dismissed. The second claim, lodged by Orange Telecom for alleged expropriation of its investment in Korek, is currently pending. Both cases involved the decision by CMC in 2013 to transfer control of Korek to local investors (including a relative of the President of the Kurdistan Regional

240 “Baghdad Court Revokes Licence Renewal,” CommsUpdate (TeleGeography, Washington, DC, November 16, 2020), <https://www.commsupdate.com/articles/2020/11/16/baghdad-court-revokes-licence-renewal/>.

Government) without providing any compensation to the foreign investors. Orange and Agility had purchased 44 percent of Korek (with an option to acquire a majority share) in 2011. The reason given by CMC for the forfeiture was the failure of Agility and Orange to fulfill coverage rollout obligations and to list the company on the Iraq Stock Exchange. Court filings in the United States on the same matter also allege that Korek's senior director purchased a house in London in cash for the head of the communications regulator.²⁴¹

Spectrum needs are not being met adequately or in a timely fashion. Spectrum in Iraq has become increasingly expensive and spectrum policy has translated into higher prices and delayed both 3G and 4G rollout. Iraq has only recently (2021) opened up 4G spectrum nationwide, despite recommendations from the international community and requests from operators.²⁴² Although 3G services were commercially launched by Asiacell from 2015, at that time, Iraq's neighbors were already moving to 4G. The Cabinet stipulated introduction of 4G by early 2021 as one of the conditions for renewal of the existing national licenses that were set to expire in 2022.²⁴³ Although 4G continues to be available regionally in Kurdistan, in early 2021 Zain rolled out a pilot 4G network followed by Korek and Asiacell. As of September 2021, Asia Cell, Korek, and Zain have high-speed 4G service (over 30 megabits/second download²⁴⁴) in Baghdad, with more limited 4G penetration into Mosul, Erbil Sulaymaniyah, Karbala, and Najaf, providing evidence of concerted national 4G rollout by all three operators.

Spectrum is extremely expensive in Iraq. The 2018 GSMA study found that Iraq spectrum allocations were priced almost 15 times the global median during 2000–17, resulting in higher prices and a more challenging mobile environment. While the prices paid by Asiacell, Korek, and Zain for 2G spectrum in 2007 were in the top 5 percent of global spectrum prices, the cost of 3G spectrum was also unusually high by international standards, and mobile prices in Iraq are correspondingly high.²⁴⁵

A level playing field has not been achieved. Since 2013, there have been serious allegations of impropriety within the sector in Iraq, although these are currently pending in courts and arbitral tribunals.

Fiscal costs are unreasonably high and rising. After consistent budget shortfalls, a 20 percent telecom services tax was introduced in 2015. Kurdistan and Iraq are subject to different tax regimes, but both regions are facing increases in fiscal burdens.²⁴⁶ The status of taxes paid by service providers in Kurdistan is currently being disputed between the federal government and regional authorities in Kurdistan.²⁴⁷

Thus, although these case studies are focused on how the investment climate during a conflict can impact outcomes, this glimpse into Iraq's post-conflict performance illustrates how quickly the state can undo any benefits that were gained from an above-average investment climate during a conflict by regressing to a below-average investment climate after the conflict period.

241 See M. Pham, "Orange Opens Court Case against Iraq Government," *Developing Telecoms* (October 15, 2020), <https://www.developingtelecoms.com/telecom-business/telecom-regulation/10130-orange-opens-court-case-against-iraq-government.html>; P. Belton, "Orange Takes Iraq to Arbitration over Its Korek Stake," *LightReading* (October 14, 2020), <https://www.lightreading.com/services/orange-takes-iraq-to-arbitration-over-its-korek-stake/d-d-id/764616>. See also *Orange S.A. v. Republic of Iraq* (ICSID Case No. ARB/20/42), <https://icsid.worldbank.org/cases/case-database/case-detail?Case-No=ARB/20/42>.

242 V. Jervis, "Roadmaps for Awarding 5G Spectrum in the MENA Region" (GSMA, London, October 2020), <https://www.gsma.com/spectrum/wp-content/uploads/2020/10/Roadmaps-for-awarding-5G-spectrum-in-the-MENA-region.pdf>.

243 J. Barton, "Iraq Attaches Strings to Licence Renewal Offer," *Developing Telecoms* (July 9, 2020), <https://www.developingtelecoms.com/telecom-business/telecom-regulation/9753-iraq-attaches-strings-to-licence-renewal-offer.html>.

244 Based on OpenSignal test results on September 30, 2021. These can be obtained using the OpenSignal app, which is available at <https://www.opensignal.com/apps>.

245 C. Garbellini, "Spectrum Pricing in Developing Countries: Evidence to Support Better and More Affordable Mobile Services" (GSMA, London, July 2018), 26, <https://data.gsmaintelligence.com/api-web/v2/research-file-download?id=33292319&file=Spectrum%20pricing%20in%20developing%20countries.pdf>.

246 Middle East Tax Handbook 21 (Deloitte, London, 2021), <https://www2.deloitte.com/ly/en/pages/tax/articles/deloitte-middle-east-tax-handbook.html>.

247 Dilan Sirwan, "KRG Will See 20 Billion Dinars Monthly from New Corporate Tax on Internet and Telecom Companies" (Rudaw Media Network, Kurdistan Region, Iraq, February 21, 2021), <https://www.rudaw.net/english/business/21022021>.

4

The State of Lybia

This component of the study assesses the impact on Libya's mobile market of civil war and internal conflict from 2011 through 2020, at which time the conflict was still continuing and the country effectively had two governments. The entire 2011-20 period is treated as a single conflict period for the purposes of this study, although it may technically reflect two civil wars separated by a brief pause, due to the heavy presence of armed groups and continuance of widespread violence during the pause between the two civil wars.

4.1 Libyan context

The following passages provide information on Libya's geography, demographics, and economy; the 2011-20 conflict; and the telecom sector.

Map 3: Libya



Source: UN Geospatial > Libya (November 1, 2015), <https://www.un.org/geospatial/content/libya>.

Libya's geography, demographics, and economy

Libya is located in North Africa on the Mediterranean Sea between the Arab Republic of Egypt, Algeria, and Tunisia (map 3). It is also bordered by the Sub-Saharan African nations of Sudan to the southeast, Chad to the south, and Niger to the southwest.

Libya has a relatively small population of about 6.97 million and a relatively large land area of about 1.77 million square kilometers (about 685,000 square miles). Over 90 percent of the population lives along the Mediterranean coast between Tripoli to the west and Tobruk to the east. The interior, which lies in the Sahara Desert, remains vastly underpopulated, with a population density of less than 1 per square kilometer.²⁴⁸ Likewise, over 90 percent of the land area is largely unused.²⁴⁹

Real gross domestic product (GDP) per capita was USD 15,174 in 2019. GDP composition by sector of origin in 2017 was 1.3 percent agriculture, 52.3 percent industry, and 46.4 percent services.²⁵⁰ Libya's primary natural resources are petroleum, natural gas, and gypsum. Its primary exports in 2019 were crude petroleum, natural gas, gold, refined petroleum, and scrap iron. Libya's economy was heavily dependent on its crude oil industry. Before the popular uprising, the country produced around 1.6 million barrels a day. The labor force was about 2.4 million in 2020. Unemployment is in the region of 19.4 percent. Today, 68.5 percent of the population has electricity, 92.1 percent has access to sanitary facilities, and 99.9 percent has access to treated drinking water. The literacy rate is relatively high, at 86 percent, including 93.9 percent of males and 77.8 percent of females.²⁵¹

The conflict in Libya

The current conflict in Libya began during the Arab Spring protests against poor social and economic conditions, which initially erupted in neighboring Tunisia in December 2010.²⁵² Protests led to regime change in Tunisia in January 2011 and Egypt in February 2011.²⁵³ The unrest spilled over into Libya. Before the crisis, Muammar Gaddafi had been in power for 42 years. Simmering unrest from decades of political oppression boiled over on February 15, 2011.

By February 18, 2011, the opposition controlled most of Benghazi, Libya's second largest city. Elite troops and militia dispatched by the government to recapture the city were repelled. By February 20, protests had spread to Tripoli. The rising death toll, numbering in the thousands, drew international condemnation and internal calls for regime change. The international community responded on February 26, 2011, passing UN Security Council Resolution 1970, which called for an immediate ending of the violence in Libya. and an arms embargo,²⁵⁴ establishing a no-fly zone and authorising the use of force under chapter 7 of the UN charter.

Gaddafi's removal from power in 2011 ended over four decades of autocratic rule, while precipitating Libya's fracture along political, regional, sectarian, and tribal lines. The 2011 Constitutional Declaration (as amended) provided for the GNC to elect a special body to prepare a draft Constitution within 120 days from the date of its first session. However, the GNC grew concerned that this was insufficient time to draft the Constitution and provided a mechanism for the committee's work to be extended.²⁵⁵ This extension of the mandate proved controversial because it delayed new elections. It was challenged in court and sparked public protests.²⁵⁶ Thousands of Libyans protested in Tripoli and Benghazi, demanding the interim government to step down as promised.

General Khalifa Haftar, a former Libyan military officer who had defected to the United States in the late 1980s, returned to Libya after Gaddafi's downfall. Haftar cultivated support from local tribes and businesses and gathered former soldiers of the Libyan Army to build his own armed forces, which were referred to as the Libyan National Army. He also sought foreign support. Haftar then launched a campaign, known as Operation Dignity, through which he claimed to protect Libya from terrorists. His forces first captured Benghazi. Armed groups from Zintan, who had controlled the airport since 2011, also took part in the clashes over the airport. Libya Dawn then gained control of the airport and Tripoli.

248 World Population Review (2021), <https://worldpopulationreview.com/countries/libya-population>.

249 IndexMundi > Factbook > Countries > Libya > Geography > Land Use (2018), https://www.indexmundi.com/libya/land_use.html.

250 IndexMundi > Factbook > Countries > Libya > Economy > GDP – Composition by Sector (2017), https://www.indexmundi.com/libya/gdp_composition_by_sector.html.

251 World Bank > DataBank > World Development Indicators > Libya (2020).

252 See Elie Abouaoun, "Tunisia Timeline: Since the Jasmine Revolution" (United States Institute of Peace, Washington, DC, July 12, 2019), <https://www.usip.org/tunisia-timeline-jasmine-revolution>.

253 See Erin Blakemore, "What Was the Arab Spring and How Did It Spread?" National Geographic (March 29, 2019), <https://www.nationalgeographic.com/culture/article/arab-spring-cause>.

254 See International Commission of Jurists, "The Draft Libyan Constitution: Procedural Deficiencies, Substantive Flaws" (International Commission of Jurists, Geneva, December 2015), 16–17, <https://www.refworld.org/pdfid/57ee86814.pdf>.

256 P. Markey and G. Shennib, "In Standoff, Libyans Protest over Parliament Extension," Reuters (February 7, 2014), <https://www.reuters.com/article/us-libya-crisis/in-standoff-libyans-protest-over-parliament-extension-idUSBREA161MH20140207>.

Libya Dawn's victory in Tripoli fostered the conditions for two opposing governments and two parliaments in Libya. The GNC was reinstated in Tripoli, while the elected House of Representatives moved to the eastern city of Tobruk. Neither body recognized the legitimacy of the other.²⁵⁷ During this reprisal of conflict in 2014, oil production again fell, especially as rival militias fought for control of key oil facilities.²⁵⁸

In November 2014, the Libyan Supreme Court ruled that the House of Representatives was unconstitutional because the committee that wrote the election law violated Libya's provisional Constitution. Peace talks led to the Libyan Political Agreement in December 2015, which was endorsed by the UN. At the time the agreement was signed, the Presidential Council was expected to lead during the transitional period. The planned government was made up of the nine-member Presidential Council, called the Government of National Accord (GNA); the elected House of Representatives serving as parliament; and the State Council to serve as the consultative chamber. The international community and the outgoing GNC accepted the GNA as the legitimate Libyan government. The Presidential Council was required to name a new government within a month, which a UN Security Council resolution promised to endorse.

The peace did not hold for long. A few months after Libya's tentative steps toward peace, Haftar and his armed forces launched a second offensive and took over key oil ports in mid-September 2016. Haftar's forces clashed directly with fighters loyal to the GNA. Gaining control of the oil ports was widely viewed as a way for Haftar to gain leverage in political negotiations. Previously, the oil ports had been controlled by the Petroleum Facilities Guard, an armed group led by Ibrahim Jathran and loyal to the Tripoli-based government.

These actions effectively returned Libya to a failed state with competing factions in the east and west, a scenario that continued through the end of 2020. The two factions reflect deep internal divisions in Libya; the diverse mix of tribal groups fighting for their own interests and having coalesced under government and military alliances

The western faction, Tripoli-based GNA, had the support of the GNC and was the officially recognized government, but it did not control Libya's army. The Tobruk-based eastern faction had the support of the House of Representatives and had appointed General Khalifa Haftar as the leader of the Libyan National Army. In addition to the two primary factions, a variety of armed militia groups, including the Islamic State, had been involved. Numerous external military interventions in Libya occurred over the course of the 2014–20 period of the conflict, often involving various external actors supporting the different sides.

In 2019, the eastern-backed forces led by Field Marshal Khalifa Haftar launched a full-scale attack on Tripoli. Both sides actively solicited military support from foreign actors. The fighting only came to a standstill after it became clear that neither side could achieve a military victory, and after the eastern branch of the central bank was no longer able to provide financing to the parallel institutions. This paved the way for a United Nations facilitated ceasefire agreement in October 2020, which in turn fostered the conditions for political talks under the multi-track Berlin Process (Libyan Political Dialogue Forum (LPDF) that led to the formation of a new Government of National Unity (GNU), effectively ending the period of divided government. The national elections were planned in December 2021, in accordance with a political roadmap agreed upon by the LPDF.

The end of 2020 brought hopeful signs, but the Libyan conflict has still not seen an effective resolution. Meanwhile, Libya's borders remain porous, particularly in the southern Fezzan, facilitating an increase in trafficking and smuggling of illicit materials, including weapons.²⁵⁹

Once an upper-middle-income country with health and education indicators among the highest in Africa, Libya had by 2019 become a lower-middle-income country navigating a challenging transition.²⁶⁰ Economic circumstances further deteriorated in 2020 ahead of the national conflict slowing later that year. In 2020, a blockade of petroleum exports, which generate 60 percent of GDP and 90 percent of state revenue,²⁶¹ contributed to a 31.3 percent decline in real GDP.²⁶²

257 "Libya Faces Chaos as Top Court Rejects Elected Assembly," *Reuters* (November 6, 2014), <https://www.reuters.com/article/us-libya-security-parliament/libya-faces-chaos-as-top-court-rejects-elected-assembly-idUSKBN0IQ0YF20141106>.

258 See Zineb Abdessadok, "Libya Today: From Arab Spring to Failed State," *Al Jazeera* (May 30, 2017), <https://www.aljazeera.com/features/2017/5/30/libya-today-from-arab-spring-to-failed-state>.

259 United States Institute of Peace, "The Current Situation in Libya" (United States Institute of Peace, Washington, DC, December 30, 2020), <https://www.usip.org/publications/2020/12/current-situation-libya>.

260 IBRD, IFC, and MIGA (World Bank, International Finance Corporation, and Multilateral Investment Guarantee Agency), "Country Engagement Note for the State of Libya for the Period 2019-2021," Report No. 123985-LY (IBRD, IFC, and MIGA, Washington, DC, February 19, 2019), <https://documents1.worldbank.org/curated/zh/750661550977483586/pdf/Libya-CEN-to-Board-final-01252019-636865562772741763.pdf>.

261 World Bank, Libya's Economic Update (World Bank, Washington, DC, April 2020), <https://www.worldbank.org/en/country/libya/publication/economic-update-april-2020>.

262 World Bank, Libya's Economic Update (World Bank, Washington, DC, April 2020), <https://www.worldbank.org/en/country/libya/publication/economic-update-april-2020>.

Libya's telecom sector

Libya had virtually no public telecommunications infrastructure at the inception of the Libyan Cultural Revolution in 1969.²⁶³ The new government developed extensive public telecommunications systems in the late 1970s and early 1980s. Libya's domestic market was served by a combination of terrestrial radio relay, coaxial cable, and a domestic satellite system. The number of telephone lines increased from 90,000 in 1978 to 215,000 in 1985. International links included submarine cables from Tripoli to Marseilles, France, and Catania, Italy, and satellite connections served by Intelsat and Arabsat.²⁶⁴

In 1984, the government established the General Posts and Telecommunications Company (GPTC) to corporatize state provision of telecommunications and postal services²⁶⁵ under the responsible sector ministry.²⁶⁶ As a state-owned enterprise, GPTC was able to access the government's financial resources for investment and served as part of Gaddafi's planned-economy approach to domestic markets. Although it was originally set up as an operating company, GPTC eventually began establishing new business lines through separate subsidiaries. In 1995, GPTC established Libya's first mobile operator through a newly formed subsidiary, Almadar Aljadid Company,²⁶⁷ which launched 2G service in November 1996.²⁶⁸ GPTC similarly established Libya Telecom & Technology Company (LTT) as a subsidiary in 1997 to serve as the country's first internet service provider (ISP).

GPTC later established a second mobile subsidiary, Libyana Mobile Phone Company, which began offering services in September 2004.²⁶⁹ At the outset, Almadar and Libyana offered complementary rather than competitive services, and they have never competed on price. Almadar continued to provide a low-end offering of relatively low-quality basic voice and text services over a limited coverage area, while the government invested to enable Libyana to establish a high-end offering, launching 3G mobile broadband in 2006,²⁷⁰ with better coverage and higher service quality.²⁷¹ In 2005, the government decided to replace GPTC with a holding company and subsidiary structure, establishing the Libyan Post Telecommunications and Information Technology Company (LPTIC) as the holding company, and setting in motion a process to restructure GPTC's subsidiaries, operating businesses, and investments as LPTIC subsidiaries and investments.²⁷² Over the next several years, GPTC transferred its operating assets to new LPTIC subsidiaries. GPTC transferred its postal unit to the LPTIC subsidiary Libya Post Company.²⁷³ In 2008, GPTC transferred its national fixed telephone network unit to LPTIC subsidiary Hatif Libya.²⁷⁴ In 2009, GPTC transferred its wholesale international voice and data business unit to LPTIC subsidiary Libya International Telecommunication Company.²⁷⁵ Prior to 2010, GPTC also transferred to LPTIC the shares of its existing subsidiaries, mobile operators Almadar and Libyana and ISP LTT. GPTC was dissolved in 2010.²⁷⁶

263 See Amr Hamby, "ICT in Education in Libya," in Survey of ICT and Education in Africa: Libya Country Report at 5 (infoDev, World Bank, Washington, DC, June 2007), https://www.infodev.org/infodev-files/resource/InfodevDocuments_412.pdf.

264 See Helen Chapin Metz, ed., Libya: A Country Study (Federal Research Division, US Library of Congress, Washington, DC, 1988), 169, http://www.memory.loc.gov/master/frd/frdcstdy/li/libyacountrystud00metz_0/libyacountrystud00metz_0.pdf.

265 Freedom House, "Freedom on the Net 2020: Libya" (Freedom House, Washington, DC, 2020), <https://freedomhouse.org/country/libya/freedom-net/2020>.

266 See Helen Chapin Metz, ed., Libya: A Country Study (Federal Research Division, US Library of Congress, Washington, DC, 1988), 168, http://www.memory.loc.gov/master/frd/frdcstdy/li/libyacountrystud00metz_0/libyacountrystud00metz_0.pdf.

267 See Almadar Aljadid > About Almadar > Who We Are (2021), <https://almadar.ly/en/Pages/Who-we-are.aspx>.

268 See "Second GSM Operator Launched," CommsUpdate (TeleGeography, Washington, DC, September 9, 2004), <https://www.commsupdate.com/articles/2004/09/09/second-gsm-operator-launched/>.

269 See "Second GSM Operator Launched," CommsUpdate (TeleGeography, Washington, DC, September 9, 2004), <https://www.commsupdate.com/articles/2004/09/09/second-gsm-operator-launched/>.

270 See Libyan Post Telecommunications and Information Technology Company > Subsidiaries > Libyana Mobile Phone Company (2021), <https://lptic.ly/en/subsidiary/>.

271 See, for example, Natalija Gelvanovska, Michel Rogy, and Carlo Maria Rossotto, Broadband Networks in the Middle East and North Africa: Accelerating High-Speed Internet Access (World Bank, Washington, DC, 2014), 179, <https://openknowledge.worldbank.org/handle/10986/16680>.

272 Libyan Post Telecommunications and Information Technology Company > About Us > Overview (2021), <https://lptic.ly/en/about/overview/>.

273 Libya Post > About Us (2021), <https://libyapost.ly/en/about-us/>.

274 Hatif Libya > About Us > Who We Are (2021), <https://hlc.ly/en/about.php?pid=2&13bad68c83302aae89a790f3342b6fce>.

275 The Libyan International Telecom Company > About Us (2021), <https://litc.ly/en/about-us/>.

276 See Libyan Post Telecommunications and Information Technology Company > About Us > Overview (2021), <https://lptic.ly/en/about/overview/>.

During this period, LPTIC also acquired or made portfolio investments in overseas telecom companies in Argentina, Canada, Côte d'Ivoire, Italy, Mauritius, Saudi Arabia, the United Arab Emirates, and the United Kingdom.²⁷⁷ LPTIC acquired a 14.8 percent stake in Retelit (an Italian fiber network and data center operator) and held discussions, later aborted, to acquire a stake in Telecom Italia.²⁷⁸ Separately, by 2011, the Libyan government's investment arm, through the Libya African Portfolio (LAP), had made investments in controlling stakes in telecom operators or greenfield licenses, operating under the LAP Green Network (LAP GreenN) brand, in Côte d'Ivoire, Niger, Rwanda, Sierra Leone, South Sudan, Togo, Uganda, and Zambia.²⁷⁹

During and after GPTC's restructuring and dissolution, LPTIC and its subsidiaries remained in the portfolio of the responsible sector ministry, then called the Libyan Ministry of Telecommunication. LPTIC was headed and partially owned by Gaddafi's eldest son, Mohammed Gaddafi, prior to 2011,²⁸⁰ a time when LPTIC and its subsidiaries were allegedly saddled by corruption and inefficiency.²⁸¹

In 2007, the government floated plans to privatize its two state-owned mobile operators, Almadar and Libyana, which were then still owned by GPTC,²⁸² but those plans were aborted. In February 2009, the General Telecommunication Authority, which was the sector regulator, announced an international tender to issue a combined fixed and mobile license to a privately owned operator, with bids due in May

and winners to be announced in June.²⁸³ Both Etisalat and Turkcell submitted bids, but after a long-delayed process, they were rejected as "unsuitable" in July 2010,²⁸⁴ although Turkcell later claimed to have declined the concession due to perceived lack of a level playing field.²⁸⁵ No further plans to attract private investment or introduce competition into the sector were announced or consummated before the conflict. However, in February 2011, just before Gaddafi's removal from office, state-owned fixed broadband ISP LTT announced that it had launched LibyaPhone Mobile as Libya's third mobile service, offering both 2G and 3G service.²⁸⁶ LibyaPhone Mobile was an LTT-branded mobile virtual network operator (MVNO) service²⁸⁷ offered to LTT's fixed broadband customers, enabling them to roam on one of the mobile networks. Over time, LTT had migrated its ISP offerings from dial-up to asymmetric digital subscriber line (ADSL) and Worldwide Interoperability for Microwave Access (from 2009, operating in 2.5 gigahertz band).²⁸⁸

A year later, LibyaPhone had only reached about 0.4 percent subscriber share, while Libyana had 66.4 percent and Almadar had 33.2 percent.²⁸⁹

Libya's relatively high GDP had enabled significant public investment in infrastructure despite the dampening effect of corruption and inefficiency. By 2011, Libya had a relatively developed telecom sector, with two mobile networks, extensive wired and wireless fixed networks, three international submarine cables, two international

277 See Media Landscapes > Country > Libya > Company Profiles (European Journalism Centre, 2021), <https://medialandscapes.org/country/libya/telecommunications/company-profiles>.

278 See "Factbox – Libyan Investments in Italy," Reuters (August 29, 2010), <https://www.reuters.com/article/uk-italy-libya-economy/factbox-libyan-investments-in-italy-idUKTRE67S11420100829>.

279 See "LAP Paints Subsidiaries GreenN," CommsUpdate (TeleGeography, Washington, DC, March 9, 2010), <https://www.commsupdate.com/articles/2010/03/29/lap-paints-subsidiaries-greenn/>. See also "Digicel Owner Buying Gaddafi Telecom Assets?" CommsUpdate (TeleGeography, Washington, DC, November 25, 2011), <https://www.commsupdate.com/articles/2011/11/25/digicel-owner-buying-gaddafi-telecom-assets/>.

280 Media Landscapes > Country > Libya > Company Profiles (European Journalism Centre, 2021), <https://medialandscapes.org/country/libya/telecommunications/company-profiles>.

281 Abdulla A. Abouda, "Telecom Sector in Libya: History and Recent Developments" (MarcoPolis, Paris, May 21, 2013), <https://marcopolis.net/telecom-sector-in-libya-history-and-recent-developments.htm>.

282 "Sale Planned for Libyan Cellcos," CommsUpdate (TeleGeography, Washington, DC, February 26, 2007), <https://www.commsupdate.com/articles/2007/02/26/sale-planned-for-libyan-cellcos/>.

283 "Libya Launches Licence Tender," CommsUpdate (TeleGeography Washington, DC, February 19, 2009), <https://www.commsupdate.com/articles/2009/02/19/libya-launches-licence-tender/>.

284 See "LibyaPhone Mobile Enters Libyan Wireless Sector, Becomes Third State-Owned Cellco in Market," CommsUpdate (TeleGeography, Washington, DC, February 9, 2011), <https://www.commsupdate.com/articles/2011/02/09/libyaphone-mobile-enters-libyan-wireless-sector-becomes-third-state-owned-cellco-in-market/>.

285 See "Turkcell Pinpoints Libya, Somalia as Expansion Targets," CommsUpdate (TeleGeography, Washington, DC, September 19, 2011), <https://www.commsupdate.com/articles/2011/09/19/turkcell-pinpoints-libya-somalia-as-expansion-targets/>.

286 "LibyaPhone Mobile Enters Libyan Wireless Sector, Becomes Third State-Owned Cellco in Market," CommsUpdate (TeleGeography, Washington, DC, February 9, 2011), <https://www.commsupdate.com/articles/2011/02/09/libyaphone-mobile-enters-libyan-wireless-sector-becomes-third-state-owned-cellco-in-market/>.

287 See Val Jervis, Tim Miller, Yi Shen Chan, Akhilleet Kaur, and Aude Schoentgen, Roadmaps for Awarding 5G Spectrum in the MENA Region (GSMA, London, October 2020), 41, <https://www.gsma.com/spectrum/wp-content/uploads/2020/10/Roadmaps-for-awarding-5G-spectrum-in-the-MENA-region.pdf>. See also Michael Dargue and Tim Heal, "Middle East and North Africa: The Next Growth Market for MVNO?" (Cartesian, Boston, MA, April 26, 2012), slide 3, figure 2, <https://www.slideshare.net/CSMGGlobal/csmg-viewpoint-mena-the-next-growth-market-for-mvno>. See also Lauri S. Scherer, ed., Supporting Peace and Stability in Libya: A Compilation of Existing Analysis on Challenges and Needs (European Union, United Nations, and World Bank Group, consultation draft, 2019), 117, <https://documents1.worldbank.org/curated/en/832481591363718980/pdf/Supporting-Peace-and-Stability-in-Libya-A-Compilation-of-Existing-Analysis-on-Challenges-and-Needs.pdf>.

288 See "LibyaPhone Mobile Enters Libyan Wireless Sector, Becomes Third State-Owned Cellco in Market," CommsUpdate (TeleGeography, Washington, DC, February 9, 2011), <https://www.commsupdate.com/articles/2011/02/09/libyaphone-mobile-enters-libyan-wireless-sector-becomes-third-state-owned-cellco-in-market/>.

289 See "Etisalat Looks to Expand into Libya," CommsUpdate (TeleGeography, Washington, DC, February 14, 2012), <https://www.commsupdate.com/articles/2012/02/14/etisalat-looks-to-expand-into-libya/>.

terrestrial cables, and an extensive national terrestrial fiber optic network.²⁹⁰ In 2017, a UN expert report valued LPTIC at USD 20 billion, even after the impact of the conflict. The report noted that LPTIC and its subsidiaries were major employers, comprising 10 percent of the state's budget, but they presented fiscal risks of investment duplication and funds misappropriation. For example, during the conflict, one of LPTIC's mobile subsidiaries had allegedly been improperly directed to channel USD 70 million in spectrum fees to a rival political faction.²⁹¹

The 2011 revolution caused significant damage to Libya's telecom sector, destroying about 20 percent of its infrastructure, with a replacement cost in excess of USD 1 billion.²⁹² The government invested heavily in rebuilding network infrastructure in 2012 and early 2013, rebuilding about 95 percent of the major mobile networks and making plans to modernize networks and invest in a five-year rollout of fiber to homes.²⁹³

Responsibility for policy, regulation, and governance of Libya's state-owned telecom operators during the conflict period was centralized in the Ministry of Communications and Informatics. Within the ministry, some staff would oversee the state's telecom operations through governance of LPTIC and other staff would oversee policy and regulation through the General Authority of Communications and Informatics, which had replaced the pre-2011 General Telecommunication Authority. Before the conflict, LPTIC had made licensing decisions, but the transitional government moved licensing authority from LPTIC to the General Authority of Communications and Informatics.²⁹⁴

In 2013 and 2014, the new government introduced several unsuccessful efforts to liberalize the market, including drafting and introducing a telecom law to establish an independent regulator and open the market to private investment and competition.²⁹⁵ These efforts stalled, partly due to ongoing disputes over the country's political governance, and Libya has so far neither enacted a new telecom framework to allow private investment and develop competition nor established an independent regulator. Even the existing framework has been fractured by internal east-west conflict. After the 2014 disputed elections, these factions disputed ownership and control of LPTIC. The House of Representatives/Tobruk faction established an LPTIC headquarters in Malta, and the GNC/Tripoli faction took over LPTIC operations in western Libya, including its headquarters in Tripoli.²⁹⁶ LPTIC's board was reunified in March 2018.²⁹⁷

Legacy legal and regulatory barriers and government indecision continued to prevent private investment and competition in Libya's mobile market. Soon after the 2011 change in government, multiple high-profile international mobile operators publicly expressed interest in entering Libya's mobile market, including Etisalat (February 2012),²⁹⁸ Orascom (July 2012),²⁹⁹ Qatar Telecom (April 2012),³⁰⁰ Saudi Telecom (April 2012),³⁰¹ and Turkcell (September 2011).³⁰² In April 2012, the Communications Minister said the ministry would wait until after planned elections before deciding on a way forward, while the general manager of Libya's stock exchange had previously indicated that pre-war plans to list shares in Almadar and Libyana would go ahead in 2013.³⁰³ Shortly thereafter, the new government announced a tender for management contracts for Almadar and Libyana.³⁰⁴

290 See *Broadband Networks in the Middle East and North Africa: Accelerating High-Speed Internet Access* (World Bank, Washington, DC, 2014), 178–80, <https://openknowledge.worldbank.org/handle/10986/16680>.

291 Letter dated June 1, 2017, from the Panel of Experts on Libya established pursuant to Resolution 1973 (2011) addressed to the President of the Security Council (United Nations, New York, 2017), 58–59, <https://reliefweb.int/sites/reliefweb.int/files/resources/N1711623.pdf>.

292 Interview with Eng. Usama Siala, Minister of Communications and Informatics of Libya, "Libya: Detailed Overview of the Telecom Sector" (Marcopolis, Paris, June 1, 2013), <https://marcopolis.net/libya-detailed-overview-of-the-telecom-sector.htm>.

293 Interview with Eng. Usama Siala, Minister of Communications and Informatics of Libya, "Libya: Detailed Overview of the Telecom Sector" (Marcopolis, Paris, June 1, 2013), <https://marcopolis.net/libya-detailed-overview-of-the-telecom-sector.htm>.

294 See Freedom House, "Freedom on the Net 2017: Libya" (Freedom House, Washington, DC, 2017), https://freedomhouse.org/sites/default/files/FOTN%202017_Libya.pdf.

295 Interview with Eng. Usama Siala, Minister of Communications and Informatics of Libya, "Libya: Detailed Overview of the Telecom Sector" (Marcopolis, Paris, June 1, 2013), <https://marcopolis.net/libya-detailed-overview-of-the-telecom-sector.htm>.

296 "Sami Zapita, "Libya's State Telecoms Sector Agrees to Reunify Its Board under the GNA," Libya Herald (June 24, 2016), <https://www.libyaherald.com/2016/06/24/libyas-state-telecoms-sector-agrees-to-reunify-its-board-under-the-gna/>.

297 Freedom House, "Freedom on the Net 2021: Libya" (Freedom House, Washington, DC, 2021), note 20 and accompanying text, <https://freedomhouse.org/country/libya/freedom-net/2021>.

298 "Etisalat Looks to Expand into Libya," CommsUpdate (TeleGeography, Washington, DC, February 14, 2012), <https://www.commsupdate.com/articles/2012/02/14/etisalat-looks-to-expand-into-libya/>.

299 "Orascom in Talks to Manage Libyan Cellcos," CommsUpdate (TeleGeography, Washington, DC, July 5, 2012), <https://www.commsupdate.com/articles/2012/07/05/orascom-in-talks-to-manage-libyan-cellcos/>.

300 See "International Telcos Line Up to Enter Libya; Post-Election Time-Frame Mooted," CommsUpdate (TeleGeography, Washington, DC, April 10, 2012), <https://www.commsupdate.com/articles/2012/04/10/international-telcos-line-up-to-enter-libya-post-election-time-frame-mooted/>.

301 See "International Telcos Line Up to Enter Libya; Post-Election Time-Frame Mooted," CommsUpdate (TeleGeography, Washington, DC, April 10, 2012), <https://www.commsupdate.com/articles/2012/04/10/international-telcos-line-up-to-enter-libya-post-election-time-frame-mooted/>.

302 See "Turkcell pinpoints Libya, Somalia as expansion targets," CommsUpdate (TeleGeography, Washington, DC, April 10, 2012), <https://www.commsupdate.com/articles/2012/04/10/international-telcos-line-up-to-enter-libya-post-election-time-frame-mooted/>.

303 See "International Telcos Line Up to Enter Libya; Post-Election Time-Frame Mooted," CommsUpdate (TeleGeography, Washington, DC, April 10, 2012), <https://www.commsupdate.com/articles/2012/04/10/international-telcos-line-up-to-enter-libya-post-election-time-frame-mooted/>.

304 See "FT-Orange Determined to Enter Additional African Countries," CommsUpdate (TeleGeography, Washington, DC, January 15, 2013), <https://www.commsupdate.com/articles/2013/01/15/ft-orange-determined-to-enter-additional-african-countries/>.

Initial interest in the management contracts was publicly expressed by Airtel, Digicel, Etisalat, FT-Orange, Orascom, Ooredoo (Qatar Telecom), Vimpelcom, and Vodafone,³⁰⁵ and this group was later joined by Zain.³⁰⁶ However, the government abruptly halted the management contract tender in March 2013.³⁰⁷ Then, in September 2013, the Communications Minister said the government intended to award a third mobile license to a privately owned operator in three to six months.³⁰⁸ The third mobile license tender never materialized and the government went largely silent on private sector participation in its mobile markets through the end of 2020.³⁰⁹

Thus, although the post-2011 government initially issued some licenses for privately owned ISPs and value-added service providers,³¹⁰ Libya's mobile market remained tightly closed to private sector participation from 2001 through 2020.

Increased violence and territorial divisions after 2013 further stressed the sector. In 2014, LPTIC suspended its restructuring and investment plans when fighting in Tripoli led to rival governments being set up in the capital and the east³¹¹ – events that led to bifurcation of the LPTIC by the competing governments at a time when it faced significant rebuilding needs.

LPTIC's management was reunited as a single team based in Tripoli in March 2018 after four years of being divided by Libya's warring factions.³¹² LPTIC's plans at the time were to consolidate its six non-mobile subsidiaries into a single telecom company and improve connectivity and access to services throughout Libya.³¹³ These projects included a six-year, last-mile project to ensure high-speed connections to commercial and residential areas through Libya's 15,000-kilometer fiber optic network and mobile broadband projects for Almadar and Libyana.³¹⁴ Outside observers have questioned the durability of LPTIC's reunification.³¹⁵ No comprehensive assessment has been made of the disruption and destruction to Libya's telecom sector that occurred after 2014.³¹⁶

Today, not much has changed in terms of market structure, as virtually all the post-2011 plans have been disrupted by the conflict. LPTIC still owns mobile operators Almadar and Libyana and ISPLTT, which operates the LibyaPhone Mobile MVNO business. The state also retains monopoly control over wholesale domestic terrestrial fiber and submarine cable and cross-border terrestrial fiber services. Although the state has continued to invest in the sector during the conflict, significant additional financial resources would be required to restore the existing built infrastructure.³¹⁷

In 2021, LPTIC appears to have resumed outreach efforts to introduce international private investment into the telecom sector,³¹⁸ but these post-2020 efforts have been disregarded in the study.

commsupdate.com/articles/2013/01/15/ft-orange-determined-to-enter-additional-african-countries/.

- 305 See "FT-Orange, Vodafone, Vimpelcom, Digicel among Telcos Vying for Libyan Management Contracts," CommsUpdate (TeleGeography, Washington, DC, January 24, 2013), <https://www.commsupdate.com/articles/2013/01/24/ft-orange-vodafone-vimpelcom-digicel-among-telcos-vying-for-libyan-management-contracts/>. See also "Orascom in Talks to Manage Libyan Cellcos," CommsUpdate (TeleGeography, Washington, DC, July 5, 2012), <https://www.commsupdate.com/articles/2012/07/05/orascom-in-talks-to-manage-libyan-cellcos/>.
- 306 "Zain Throws Hat into Libyan Ring," CommsUpdate (TeleGeography, Washington, DC, April 8, 2013), <https://www.commsupdate.com/articles/2013/04/08/zain-throws-hat-into-libyan-ring/>.
- 307 "Libyan Government Slams the Brakes on Telco Management Tender," CommsUpdate (TeleGeography, Washington, DC, March 18, 2013), <https://www.commsupdate.com/articles/2013/03/18/libyan-government-slams-the-brakes-on-telco-management-tender/>.
- 308 "Libya to Offer Third Mobile Licence within Six Months," CommsUpdate (TeleGeography, September 11, 2013), <https://www.commsupdate.com/articles/2013/09/11/libya-to-offer-third-mobile-licence-within-six-months/>.
- 309 See, for example, CommsUpdate > Lists > Country > Libya (TeleGeography, Washington, DC, 2021), <https://www.commsupdate.com/lists/country/libya/>.
- 310 See "Deputy Telecoms Minister Confirms Flurry of Licensing Activity, Cites WiMAX Targets," CommsUpdate (TeleGeography, Washington, DC, June 10, 2013), <https://www.commsupdate.com/articles/2013/06/10/deputy-telecoms-minister-confirms-flurry-of-licensing-activity-cites-wimax-targets/>. See also Freedom House, "Freedom on the Net 2020: Libya," (Freedom House, Washington, DC, 2020), <https://freedomhouse.org/country/libya/freedom-net/2020>.
- 311 See Aidan Lewis, "Reunited, Libya Telecom Starts \$1.7 Bln Work Plan," Reuters (March 23, 2018), <https://www.reuters.com/article/ozabs-uk-libya-telecoms-idAFKBN1GZ24C-OZABS>.
- 312 See Aidan Lewis, "Reunited, Libya Telecom Starts \$1.7 Bln Work Plan," Reuters (March 23, 2018), <https://www.reuters.com/article/ozabs-uk-libya-telecoms-idAFKBN1GZ24C-OZABS>.
- 313 See Aidan Lewis, "Reunited, Libya Telecom Starts \$1.7 Bln Work Plan," Reuters (March 23, 2018), <https://www.reuters.com/article/ozabs-uk-libya-telecoms-idAFKBN1GZ24C-OZABS>.
- 314 See Aidan Lewis, "Reunited, Libya Telecom Starts \$1.7 Bln Work Plan," Reuters (March 23, 2018), <https://www.reuters.com/article/ozabs-uk-libya-telecoms-idAFKBN1GZ24C-OZABS>.
- 315 Freedom House, "Freedom on the Net 2020: Libya" (Freedom House, Washington, DC, 2020), <https://freedomhouse.org/country/libya/freedom-net/2020>.
- 316 See Lauri S. Scherer, ed., Supporting Peace and Stability in Libya: A Compilation of Existing Analysis on Challenges and Needs (European Union, United Nations, and World Bank Group, consultation draft, 2019), 115, <https://documents1.worldbank.org/curated/en/832481591363718980/pdf/Supporting-Peace-and-Stability-in-Libya-A-Compilation-of-Existing-Analysis-on-Challenges-and-Needs.pdf>.
- 317 See Lauri S. Scherer, ed., Supporting Peace and Stability in Libya: A Compilation of Existing Analysis on Challenges and Needs (European Union, United Nations, and World Bank Group, consultation draft, 2019), <https://documents1.worldbank.org/curated/en/832481591363718980/pdf/Supporting-Peace-and-Stability-in-Libya-A-Compilation-of-Existing-Analysis-on-Challenges-and-Needs.pdf>.
- 318 See, for example, Libyaninvestment.com, "Libya's State Telecoms Sector Seeks Cooperation with U.S Tech Companies, Open Sector to Foreign Direct Invest" (February 27, 2021), <https://www.libyaninvestment.com/libyas-state-telecoms-sector-seeks-cooperation-with-u-s-tech-companies-open-sector-to-foreign-direct-investment/>.

4.2 Assessment of internal Libyan telecom investment climate factors

Five internal factors during the 2011–20 conflict that impacted the mobile market investment climate were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

Libya: Market open to entry?

The economic benefit of a market being open to entry is to make it contestable, thereby strengthening competition. Before the conflict, Libya had already admitted two state-owned operators to the mobile market in 1995 and 2004 and an MVNO in 2011. However, all the operators are held and governed under the same holding company.

Before setting up the MVNO, the Gaddafi regime had considered licensing a private sector operator to enter the market to provide both mobile and fixed services, but after entertaining proposals from Etisalat and Turkcell, the government rejected both and instead established the MVNO.

Since the conflict began in 2011, multiple plans to open the mobile market have been proposed, but none were adopted or implemented. Regardless of the reasons, the market has remained impenetrable to new entrance in any form throughout the conflict period. Even if licensing a third mobile operator were not viable, the possibility of authorizing a new entrant not affiliated with the state, through full or partial privatization, joint venture, management agreement, or otherwise, would make the market contestable and strengthen competition. However, the market has instead remained closed. For these reasons, Libya was assigned an *unfavorable* score for the openness of its mobile market to new entry during the 2011–20 conflict period.

Libya: Ease of private investment?

Libya's two mobile operators and one MVNO are all state-owned enterprises as prescribed by the current legal framework. All wholesale inputs to these mobile service providers are also state-owned. Libya has allowed private investment in small fixed ISPs and very small aperture terminal providers by individuals with strong ties to governing authorities.³¹⁹ However, despite a strong show of interest by numerous well-funded and respected operators that are active in the region, no private investment in Libya's mobile market was permitted during 2011–20. Libya was therefore assigned an *unfavorable* rating on ease of private investment in the telecom sector.

Libya: Spectrum needs met?

Throughout the 2011–20 conflict period, all three wireless operators, including mobile operators Almadar and Libyana and fixed broadband provider LTT (which also offers LibyaPhone MVNO services), had generous spectrum allocations to support their existing technology deployments.

Figure 13 shows Libya's spectrum assignments by technology, band, generation, operator, and date. Figure 14 shows the total spectrum bandwidth assigned, by band and operator.

319 See Freedom House "Freedom on the Net 2021: Libya" (Freedom House, Washington, DC, 2021), <https://freedomhouse.org/country/libya/freedom-net/2021>.

Figure 13: Libya’s spectrum assignments, by technology, band, generation, operator, and date

Technologies deployed by operator by band

It can be seen from Figure 13 that 2G services were introduced in 1996-2004 in the 900MHz band, 3G services in 2006 -2007 in the 2100 MHz band and 4G in 2017-2018 in the 1800 Mhz band.

It is understood that LibyaPhone provides internet services using the 800 and 2600 Mhz bands and LTE technology but it is not clear whether they are the licensed. LibyaPhone is a MVNO

TECHNOLOGIES DEPLOYED BY OPERATOR BY BAND

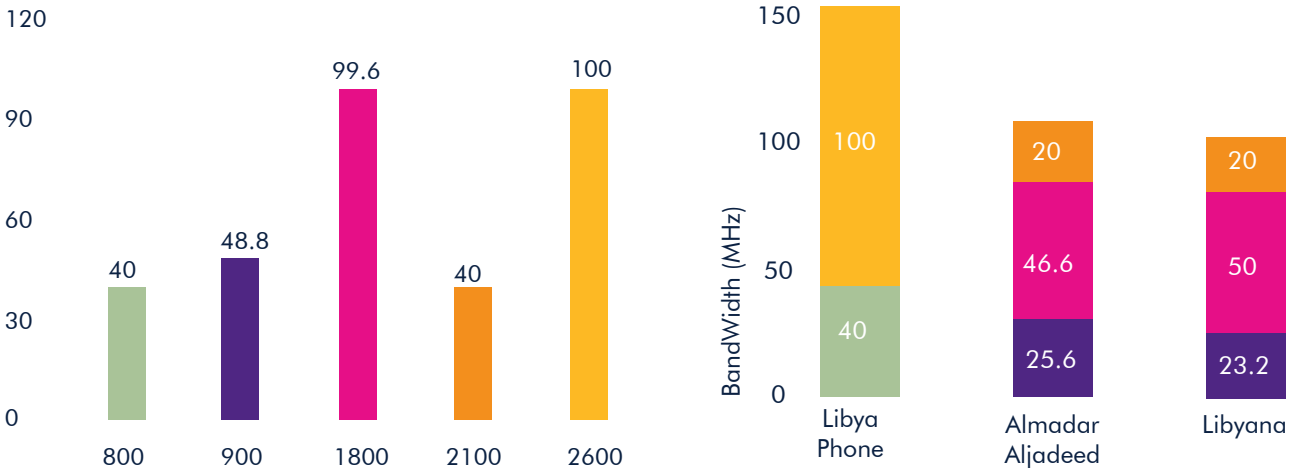
Technologies	Bands(MHz)	Generation	LibyaPhone	Libyana	Almadar Alijadeed
GSM	900	2G		Sep 2004	Nov 1996
WCDMA	2100	3G		Sep 2006	Mar 2007
WCDMA HSDPA	2100	3G		Dec 2007	
WiMAX now LTE	2600		Feb 2009		
LTE		4G	Mar 2018	Mar 2017	
LTE-Advanced	1800	4G			Oct 2018

Number of Connections by Technology

It can be seen in Figure 13 that both 2G and 3G connections are falling and 4G connections are rising . No demand for 5G has been identified. Overall connections are rising due to the increased in 4g connections.

Source: Val Jervis, Tim Miller, Yi Shen Chan, Akhiljeet Kaur, and Aude Schoentgen. 2020. *Roadmaps for Awarding 5G Spectrum in the MENA Region* (GSMA Intelligence, London), 40, 41. Used with permission.
 Note: GSM = Global System for Mobile Communications; HSDPA = high-speed downlink packet access; LTE = Long-Term Evolution; MHz = megahertz; WCDMA = Wideband Code Division Multiple Access; WiMAX = Worldwide Interoperability for Microwave Access.

Figure 14: Libya’s spectrum bandwidth assignments, by band (left chart) and by operator (right chart), 2020



Source: Val Jervis, Tim Miller, Yi Shen Chan, Akhiljeet Kaur, and Aude Schoentgen. 2020. *Roadmaps for Awarding 5G Spectrum in the MENA Region* (GSMA Intelligence, London), 40, 41. Used with permission.
 Note: MHz = megahertz.

The state's sector investments have resulted in relatively early adoption of 3G and 4G and other new technologies. Both Almadar and Libyana have introduced 4G service.³²⁰ Although it is not shown in figures 13 and 14, Almadar also launched 5G service in Libya's main cities in 2020.³²¹ Libya was assigned a *favorable* rating on meeting spectrum needs.

Libya: Level playing field?

The concept of a level playing field is premised on the existence of rivalry between independently owned network operators. With its ban on rival ownership of mobile operators during the 2011–20 conflict period, Libya not only prevented market entry and private investment, but also prevented any possibility of true rivalry and a level playing field. Libya was therefore assigned an *unfavorable* rating on establishing and maintaining a level playing field.

Libya: Fiscal reasonableness?

Libya has a general corporate income tax of 20 percent with a 4 percent jihad (defense) surtax. No sector-specific taxes appear to have been in place or imposed during the 2011–20 conflict period. Prior to 2010, Libya imposed a progressive corporate income tax with rates up to 40 percent,³²² along with the 4 percent jihad tax. In 2010, the corporate income tax rate was reduced to 20 percent, while the jihad surtax remained at 4 percent.³²³ There was no special rate for mobile operators. The stamp tax applied to telecom services (along with other utilities) was 2 percent.³²⁴ As 90 percent of government revenues derive from the energy sector, Libya has historically not relied on the telecom sector as a major component of its public sector budgets.

All major network operators in Libya are state-owned enterprises. The financial statements of LPTIC and its subsidiaries are not published, and the state provides no transparency with respect to fiscal impact on its mobile operators. In 2017, the telecommunications sector supplied 18 percent of Libya's state revenues.³²⁵

The World Bank recently observed that the Libyan government continues to derive substantial revenue from telecommunications.³²⁶ However, in both cases, the revenue source appears to be state ownership, rather than taxation, of Libya's telecom operators.

The government has invested heavily in international connectivity and the national fiber backbone. At the same time, heavy government involvement in the sector is troubling. In 2020, the General Authority for Communications and Informatics issued a decree cutting internet prices from state-owned telecom companies by 50 percent in an effort to improve service. However, the result of this effort, absent cost-based justification, effectively forced operators to subsidize subscribers.³²⁷ The UN has also reported that the telecom sector in Libya has been prone to effort duplication and funds misappropriation.

As summarized in table 11, Libya was assigned an *uncertain* rating on fiscal reasonableness due to the lack of transparency and heavy state involvement in supply-side markets.

320 Open Signal, "Libya Mobile Network Experience Report," October (Open Signal, London, 2020), <https://www.opensignal.com/reports/2020/10/libya/mobile-network-experience>.

321 See "Al Madar Switches on 5G Services," CommsUpdate (TeleGeography, Washington, DC, October 31, 2019), <https://www.commsupdate.com/articles/2019/10/31/al-madar-switches-on-5g-services/>. See also Abdulkader Assad, "Libya's Almadar Aljadeed Mobile Network Launches 5G Service," The Libya Observer (October 30, 2019), <https://www.libyaobserver.ly/news/libyas-almadar-aljadeed-mobile-network-launches-5g-service>.

322 See Art. 79 of Law No. 11 of 1372 P.D (2004) regarding income tax, <https://www.almontaser.com/Laws/Income%20Tax%20Law%20No.%2011%20of%202004.pdf>.

323 See Art. 70 of Law No. (7) of 1378 FDP (2010 AD) on income taxes, https://security-legislation.ly/sites/default/files/law/815-Law%20No.%20%287%29%20of%202010_EN.pdf; Money Jihad, "Libya Amends Income Tax, Keeps Jihad Tax," <https://moneyjihad.wordpress.com/2010/07/25/libya-amends-income-tax-keeps-%E2%80%9Cjihad-tax%E2%80%9D/>.

324 See Law No. 12 of 1372 P.D. regarding stamp tax (2004), <https://www.almontaser.com/Laws/Stamp%20Tax%20Law%20No.%2012%20for%202004.pdf>.

325 See Abdalla Bader Hamed (Al Hasse), An Introductory Study on the Status, Challenges and Prospects of the Libyan Economy (United Nations, New York, 2020), 22, <https://undocs.org/pdf?symbol=en/E/ESCWA/CL6.GCP/2020/TP3>.

326 See World Bank, Libya Economic Monitor, spring (World Bank, Washington, DC, 2021), 4, <https://thedocs.worldbank.org/en/doc/3d3cd-163628175d3add84db3c707eaa5-0280012021/original/ENG-Libya-Economic-Monitor.pdf>.

327 Safa Alharathy, "General Authority for Communications and Informatics to Reduce Internet Prices," The Libya Observer (February 20, 2020), <https://www.libyaobserver.ly/inbrief/general-authority-communications-and-informatics-reduce-internet-prices>.

Table 11: Libya: Fiscal reasonableness determination

LIBYA: FISCAL REASONABLENESS, 2011-20			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
24% corporate income tax 2% stamp tax	None identified during the relevant period	Misappropriation of state-owned enterprise funds Investment policy not market-driven	Lack of transparency
Libya overall rating: Uncertain			

Source: World Bank.

Table 12: Libya: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Market open to entry	0	State ownership of both mobile operators No pathway for new entry permitted, whether via licensing, privatization, joint venture, or management agreement
Ease of private investment	0	Private participation in mobile market not permitted
Spectrum needs met	2	Generous spectrum assignments and reasonably early deployment of mobile broadband
Level playing field	0	State ownership of incumbent mobile operators and mobile virtual network operator Common governance through state holding company precludes functional independence
Fiscal reasonableness	1	No excessive fees or taxes State ownership without fiscal transparency
All	3	

Source: MacMillan Keck.

Libya: Summary of key findings across all the internal factors

Table 12 summarizes the scoring of the five internal factors impacting Libya's telecom investment climate. It also offers the key relevant facts that led to the score for each factor.

4.3 Assessment of external Libyan telecom investment climate factors

Five external factors during the 2011–20 conflict that impacted Libya’s climate for telecom investment were assessed: (1) military or paramilitary interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings across all the external factors.

Libya: Military or paramilitary interference?

After a hopeful period from July 2012 through late 2013, by early 2014, Libya was spiraling into a protracted internal conflict that would not end until a ceasefire went into effect in October 2020. Following the June 2014 elections, Libya remained a bifurcated country for most of the period through 2020. The west of the country was controlled by the internationally recognized GNC (and, for a time, the GNA as its successor), while the east of the country was controlled by General Haftar and the Libyan National Army with the support of the House of Representatives. In addition, other armed militia groups, including the Islamic State, disrupted Libya’s internal territory and order. External actors exacerbated Libya’s problems by funneling money and weapons to proxies on both sides. UN efforts to broker peace did not succeed until October 2020.³²⁸

Libya’s geographic fracture and its governance fracture along political, regional, sectarian, and tribal lines had an adverse impact on the country’s mobile market and its telecom sector more broadly for the entire conflict period, with the possible exception of the second half of 2012 and most of 2013. This fracture, and corresponding interference by active non-state militias prior to 2012 and the Libyan National Army from 2014 through late 2020, effectively stopped all efforts to invite private sector investment into Libya’s mobile market and disrupted LPTIC’s efforts to preserve and rebuild its infrastructure.

These circumstances were exacerbated when petroleum exports were blocked during 2020 until the ceasefire went into effect in October.³²⁹

Libya was assigned an *unfavorable* score on this external factor due to paramilitary and military interference from 2011 through mid-2012 and from 2014 through late 2020.

Libya: International sanctions?

Libya had been considered a pariah state during a long stretch of Gaddafi’s reign, but international sanctions that were imposed in the late 1980s were lifted in 2004 and had no impact during the 2011–20 study period.

During the 2011–20 conflict, Libya was subject to various international sanctions. In March 2011, the European Union imposed a broad ban on exporting military technology and technical assistance to specified individuals and entities in Libya that were associated with the Gaddafi regime, including his son, who was identified as chairperson of the GPTC.³³⁰ The sanctions were amended shortly thereafter,³³¹ supplemented by various decisions and ultimately replaced by a consolidated regulation in January 2016, which no longer showed Gaddafi’s son as associated with Libya’s state-owned telecom operators.³³² These EU sanctions are still in effect today.³³³

Commencing in February 2011, the UN imposed embargoes on the supply of arms and military equipment to Libya. In March 2011, a no-fly zone was imposed over Libya. After the UN recognized the NTC as the legitimate Libyan government, provision of arms to the government was permitted subject to a notification requirement, which was removed in 2013. In August 2014, the UN imposed stricter requirements, including advance approval by the Sanctions Committee.³³⁴ The UN Security Council resolutions of 2011 established a long list of sanctioned individuals.³³⁵ Specified individuals continue to be subject to UN sanctions under Security Council Resolutions 1970 and 1973, with the list updated as recently as April 29, 2021.

In addition to prohibition against arms sales, the listed individuals and entities are subject to travel bans, asset freezes, and other business restrictions.³³⁶

328 See “Libya: Ceasefire, Planned Elections, Offer Rare Window of Hope, Security Council Hears,” UN News (May 21, 2021), <https://news.un.org/en/story/2021/05/1092542>.

329 World Bank, “Libya Is Aspiring for Recovery and Healing, but Challenges Abound,” Press Release (World Bank, Washington, DC, April 22, 2021), <https://www.worldbank.org/en/news/press-release/2021/04/22/libya-is-aspiring-for-recovery-and-healing-but-challenges-abound#>.

330 See Council Regulation (EU) No 204/2011, concerning restrictive measures in view of the situation in Libya (March 2, 2011), annex III, entry 13, <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:058:0001:0013:EN:PDF>. EU Council Regulation 296/2011.

331 See Council Regulation (EU) No 296/2011 of March 25, 2011, amending Regulation (EU) No 204/2011 concerning restrictive measures in view of the situation in Libya, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0296&from=EN>.

332 See Council Regulation (EU) 2016/44, concerning restrictive measures in view of the situation in Libya and repealing Regulation (EU) No 204/2011 (January 18, 2016), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0044&from=en>.

333 Council Regulation (EU) 2016/44 and subsequent implementing regulations and interpretations have been consolidated at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02016R0044-20210731&from=EN>.

334 “UN Arms embargo on Libya,” Stockholm International Peace Research Institute Database (August 20, 2020), https://www.sipri.org/databases/embargoes/un_arms_embargoes/libya/libya_2011.

335 Security Council resolution 1970 (2011) and Resolution 1973 (2011) (United Nations, New York).

336 The list of currently sanctioned individuals and description of the sanctions is available at <https://www.un.org/securitycouncil/sanctions/1970/materials>.

The US Executive Order³³⁷ echoed the UN Security Council resolutions and froze the assets of members of the Gaddafi family and the Government of Libya. Shortly after closing its embassy in Tripoli in February 2011, the United States imposed an asset freeze on Gaddafi, his family, and senior members of the government.³³⁸ In 2016, the United States added individuals opposed to the UN-sponsored unity government to its Libya sanctions list.³³⁹

The EU, UN, and US sanctions in effect since 2011 were narrowly tailored to restrict the sale of arms and financial transactions with specified individuals and entities associated with the Gaddafi regime (such as Gaddafi's family members and associates and entities in which they had ownership interest). These sanctions do not prohibit the supply of telecommunications equipment or technology and have not been directly applied to any of Libya's domestic state-owned telecom operators, although LAP GreenN was initially subject to sanctions due to its previous relationship with the Gaddafi regime.³⁴⁰ Throughout the conflict, LPTIC and its subsidiaries have not been restricted by these sanctions from investing in infrastructure restoration or upgrades.

Libya was assigned a *favorable* score on international sanctions.

Libya: Travel restrictions?

Libya faced extreme travel restrictions throughout most of the 2011–20 conflict period, with the exception of 2012 and 2013. The UN Security Council imposed a no-fly zone over Libya from March through October 2011.³⁴¹ As a result of the renewed fighting, all foreign air carriers suspended all international flights to Libya from 2014 through May 2021, with TunisAir operating the last foreign carrier flight in August 2014 and the first resumed flight in May 2021. During this period, the only scheduled international flights to Tunisia, Turkiye, and Egypt were operated by Libyan companies, which did not have access to European or US airspace.³⁴² The Libyan National Army also imposed relatively short no-fly zones over parts of Libya in 2018

and 2019,³⁴³ and other governments also ordered their air carriers to avoid Libyan airspace from time to time during the conflict.³⁴⁴ Civilians who managed to get to Libya were unsafe, as an atmosphere of persistent lawlessness enabled militias, criminals, and terrorist groups to operate with impunity, while recurrent conflict endangered civilian rights and safety.³⁴⁵

Libya was assigned an *unfavorable* rating on travel restrictions.

Libya: International aid for telecommunications?

International aid for Libya's telecom sector from 2011 through 2020 was very limited.

Libya's status as a pariah state until 2004 and the Gaddafi regime's distrust of nongovernmental organizations (NGOs)³⁴⁶ largely precluded its active financial support from global and regional donor organizations before the 2011 revolution. The legal framework for NGOs in Libya was the most restrictive in the region, and Libyan law prohibited receiving financial assistance from organizations headquartered outside Libya. These legal restrictions significantly restricted the availability of foreign financial assistance under the Gaddafi regime.³⁴⁷

In addition, Libya had more of the posture of a donor nation prior to the conflict. The government had channeled a significant part of the state's petroleum revenues into a sovereign wealth fund, the Libyan Investment Authority. Through this fund, Libya had state-financed extensive LAP telecom development projects throughout Africa. The international telecom investments were operated under the LAP GreenN brand. After the onset of the conflict, because LAP GreenN was on the original sanctions list, many of these investments were frozen by international sanctions and local ministries. Regulators in some cases attempted to terminate the licenses and/or confiscated the assets of LAP GreenN's local subsidiaries.³⁴⁸

337 Executive Order 13566 of February 25, 2011.

338 Helene Cooper and Mark Landler, "U.S. Imposes Sanctions on Libya in Wake of Crackdown," *The New York Times* (February 25, 2011), <https://www.nytimes.com/2011/02/26/world/middleeast/26diplomacy.html>.

339 Declan Walsh, "U.S. Penalizes Libyan Politician in Effort to Bolster Unity Government," *The New York Times* (April 19, 2016), <https://www.nytimes.com/2016/04/20/world/middleeast/us-libya-sanctions-unity-government.html>.

340 EU Council Regulation No 204/2011 concerning restrictive measures in view of the situation in Libya (March 2, 2011), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02011R0204-20150802>.

341 Security Council Resolution 1973 (United Nations, New York, 2011).

342 See "TunisAir First Foreign Carrier to Resume Libya Flights," *Al Jazeera* (May 18, 2021), <https://www.aljazeera.com/news/2021/5/18/tunisair-first-foreign-carrier-to-resume-libya-flights>.

343 Patrick Wintour, "Libyan Army Chief Strengthens Hand by Taking More Territory," *The Guardian* (March 11, 2019), <https://www.theguardian.com/world/2019/mar/11/libya-khalifa-haftar-gains-control-of-majority-of-country-onshore-oil-fields>.

344 For example, the United States issued an emergency do-not-fly order regarding Libyan airspace in late 2019. See David Mumford, "US Issues Emergency DO NOT FLY Order for Libya" (Opsgroup, October 23, 2019), <https://opsgroup.blog/hll/>.

345 US Congressional Research Service, "Libya: Conflict, Transition, and U.S. Policy" (June 26, 2020), <https://fas.org/spp/crs/row/RL33142.pdf>.

346 See Barah Mikail, *Civil Society and Foreign Donors in Libya* (Arab Forum for Alternatives, Fride, and Hivos, Netherlands, 2013), 2–3, <https://www.files.ethz.ch/isn/167258/Civil%20society%20and%20foreign%20donors%20in%20Libya.pdf>.

347 Barah Mikail, "Civil Society and Foreign Donors in Libya" (Arab Forum for Alternatives, Fride, and Hivos, Netherlands, 2013), 2, <https://www.files.ethz.ch/isn/167258/Civil%20society%20and%20foreign%20donors%20in%20Libya.pdf>.

348 "LAP Green Seeks to Lift Sanctions, Denies Sale," *Reuters* (November 30, 2011), <https://www.reuters.com/article/libya-telecom/lap-green-seeks-to-lift-sanctions-denies-sale-idUSL5E7MU63520111130>.

During the conflict, Libya received significant humanitarian assistance from the UN, Red Cross, various governments, and NGOs.³⁴⁹ The International Telecommunication Union provided some technical assistance on telecom-related matters in 2017,³⁵⁰ but broader international aid for telecom technical assistance and infrastructure investment was minimal through the end of 2020. In September 2011, the World Bank announced that it was joining the UN and the European Union as one of the three institutions invited by Libya’s NTC to coordinate assistance for Libya as it forged a path forward after months of violent conflict. The World Bank was asked to lead the effort in the areas of public expenditure and financial management, infrastructure repair, job creation for young people, and service delivery.³⁵¹ By the end of 2020, however, the World Bank’s role had not yet included significant technical assistance to the telecom sector and involved no investments in the telecom sector.

Libya received an *unfavorable* rating on international aid for telecommunications during 2011–20.

Libya: International security intervention?

Libya experienced competing international and bilateral security interventions throughout the conflict. Often supporting opposite sides in the conflict, these interventions were ineffective in restoring security within the country – particularly prior to October 2020. In 2011, a North Atlantic Treaty Organization–led international coalition undertook a short-lived military intervention to restore order in Libya.³⁵² No subsequent interventions helped restore or maintain order. Instead, from 2014 through October 2020, the two rival governments received external support from different countries or groups of countries. As a recent example, Turkiye deployed troops to Libya in January 2020 to support the UN-recognized GNA.³⁵³ At the same time, the United Arab Emirates launched air and drone strikes to support the opposing Libyan Arab Armed Forces, previously known as the Libyan National Army.³⁵⁴

Libya received an *unfavorable* rating on international security intervention.

Libya: Summary of key findings across all the external factors

Table 13 summarizes the scores assigned and key relevant supporting facts on the external factors that are likely to have had an impact on the development of the telecom sector in Libya.

Table 13: Libya: Assessment of external factors impacting the telecom investment climate

External factor assessed	Score	Key relevant facts
Military interference	0	Internal blockades between east and west fractured LPTIC and other SOE operations Border blockade on petroleum transport in 2020
International sanctions	2	EU, US, and UN sanctions did not apply to telecom equipment or technology or Libya’s domestic telecom SOEs LPTIC was able to procure supplies for infrastructure renewal
Travel restrictions	0	No-fly zone at outset of conflict Heavily restricted commercial travel State of lawlessness impacting travel
International aid for telecommunications	0	No significant international investment aid for telecom Some ITU technical assistance
International security intervention	0	Competing security interventions were ineffective at ensuring peace and supported both sides of the internal conflict
All	2	

Source: MacMillan Keck.

Note: ITU = International Telecommunication Union; LPTIC = Libyan Post Telecommunications and Information Technology Company; SOE = state-owned enterprise; UN = United Nations.

349 See, for example, “OCHA Financial Tracking Service, Libya 2019” (United Nations Office for the Coordination of Humanitarian Affairs, New York, 2021), <https://fts.unocha.org/countries/127/summary/2019>.

350 Safa Alharathy, “ITU to Support Libyan Telecommunications Sector,” The Libya Observer (October 22, 2017), <https://www.libyaobserver.ly/inbrief/itu-support-libyan-telecommunications-sector>.

351 “World Bank to Help Libya Rebuild and Deliver Essential Services to Citizens,” Press Release (World Bank, Washington, DC, September 13, 2011), <https://www.worldbank.org/en/news/press-release/2011/09/13/world-bank-to-help-libya-rebuild-and-deliver-essential-services-to-citizens>.

352 “Libya Still Plagued by Conflict, 10 Years after NATO Intervention,” DW News (March 18, 2021), <https://www.dw.com/en/libya-still-plagued-by-conflict-10-years-after-nato-intervention/a-56921306>.

353 “Libya Conflict: Turkey Sends Troops to Shore Up UN-Backed Government.” BBC News (January 6, 2020), www.bbc.com/news/world-africa-51003034.

354 “Libya: UAE Strike Kills 8 Civilians.” Human Rights Watch (March 30, 2021), www.hrw.org/news/2020/04/29/libya-uae-strike-kills-8-civilians#.

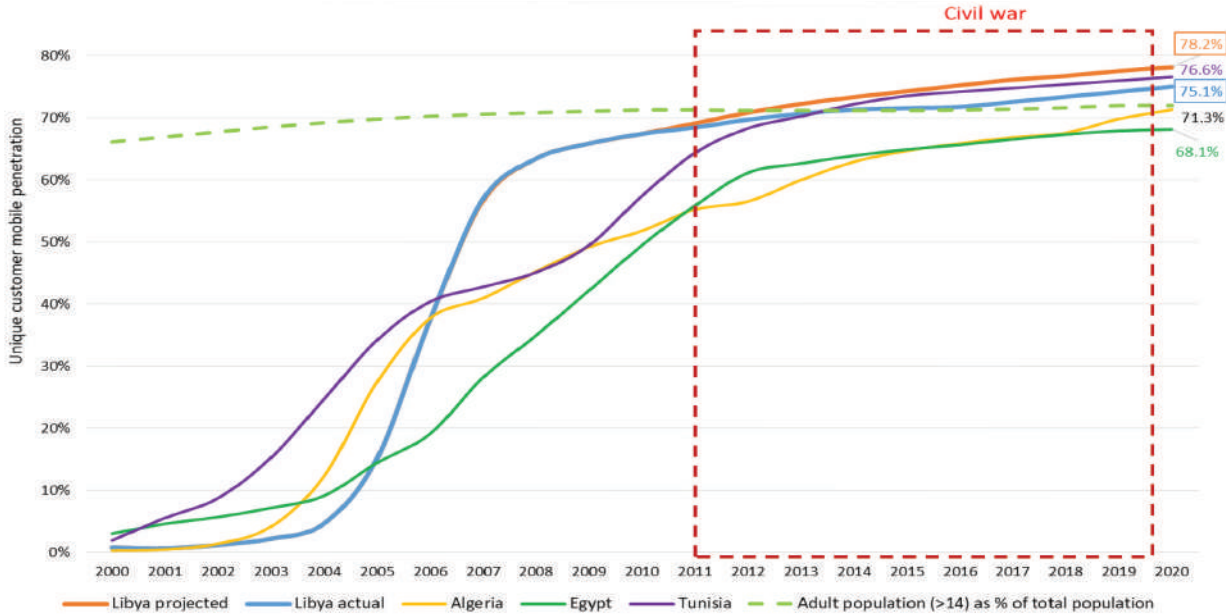
4.4 Libya’s projected and actual mobile teledensity evolution

The following passages describe Libya’s actual teledensity evolution from 2000 through 2021 and its projected but-for-the-conflict teledensity evolution since 2011.

Libya’s unique subscriber mobile penetration

Libya’s mobile penetration was considered from 2000 through 2020, including the Libyan Civil War from 2011 through 2020 (when the conflict was still ongoing). Algeria, Egypt, and Tunisia were compared as benchmarks. Libya’s adult-age (15+) population was also considered, although Libya evidences some penetration in its younger population. The projected growth in the but-for-the-conflict scenario was modeled so as not to be overly aggressive or conservative, but instead to represent a reasonable basis for what could have transpired absent the conflict. The gap in Libya’s mobile penetration between the actual and but-for-the-conflict scenarios grew from zero at the onset of the conflict in 2011 to 1.5 percentage points by 2020. The results are depicted in figure 15.

Figure 15: Libya’s unique subscriber mobile penetration, 2000–20



Source: MacMillan Keck.

Prior to the conflict, Libya had well-developed telecom infrastructure, experienced extraordinary teledensity growth from 2004 through 2007, and reached unique mobile subscriber penetration levels that were near the share of the adult population by 2011, far surpassing Algeria, Egypt, and Tunisia.

In the but-for-the-conflict scenario, Libya’s mobile penetration (the orange curve in figure 15) is projected to have grown at a slightly faster rate since 2011 than actual mobile penetration (the blue curve in the figure). Actual growth declined from 2011 to 2013, even as order was being restored and potential legislative and regulatory reforms were promised. However, in 2014, further civil unrest effectively flattened the growth curve for three years until 2017. In 2018, LPTIC reunited across the east and west, after being bifurcated in 2014. This appears to have boosted growth in the market.

In April 2018, 4G services were introduced and began to have a positive impact on mobile penetration. Prices were high initially (as in most 4G launches in Africa), but growth has been steady and download speeds (as crowdsourced by OpenSignal) and 4G use have risen significantly. Use of 4G services rose 16.4 percent over the last six months of 2018 due to significant improvements in coverage.³⁵⁵ Libya’s projected but-for-the-conflict growth is similar to the growth profile experienced in Egypt, while both Algeria and Tunisia grew faster than the projection for Libya during the same period. The but-for-the-conflict projection anticipates that 4G would have been introduced three to four years earlier than it was, but it follows a similar growth slope to actual growth since 2018. The projection curve follows the actual S-curve to 2011 and models steady growth thereafter at a slower rate due to saturation.

³⁵⁵ See, for example, Mnas Associates, “Libya’s Telecoms Launches 4G Access” (Mnas Associates, London, April 4, 2018), <https://www.menas.co.uk/blog/libyas-launches-4g-access/>.

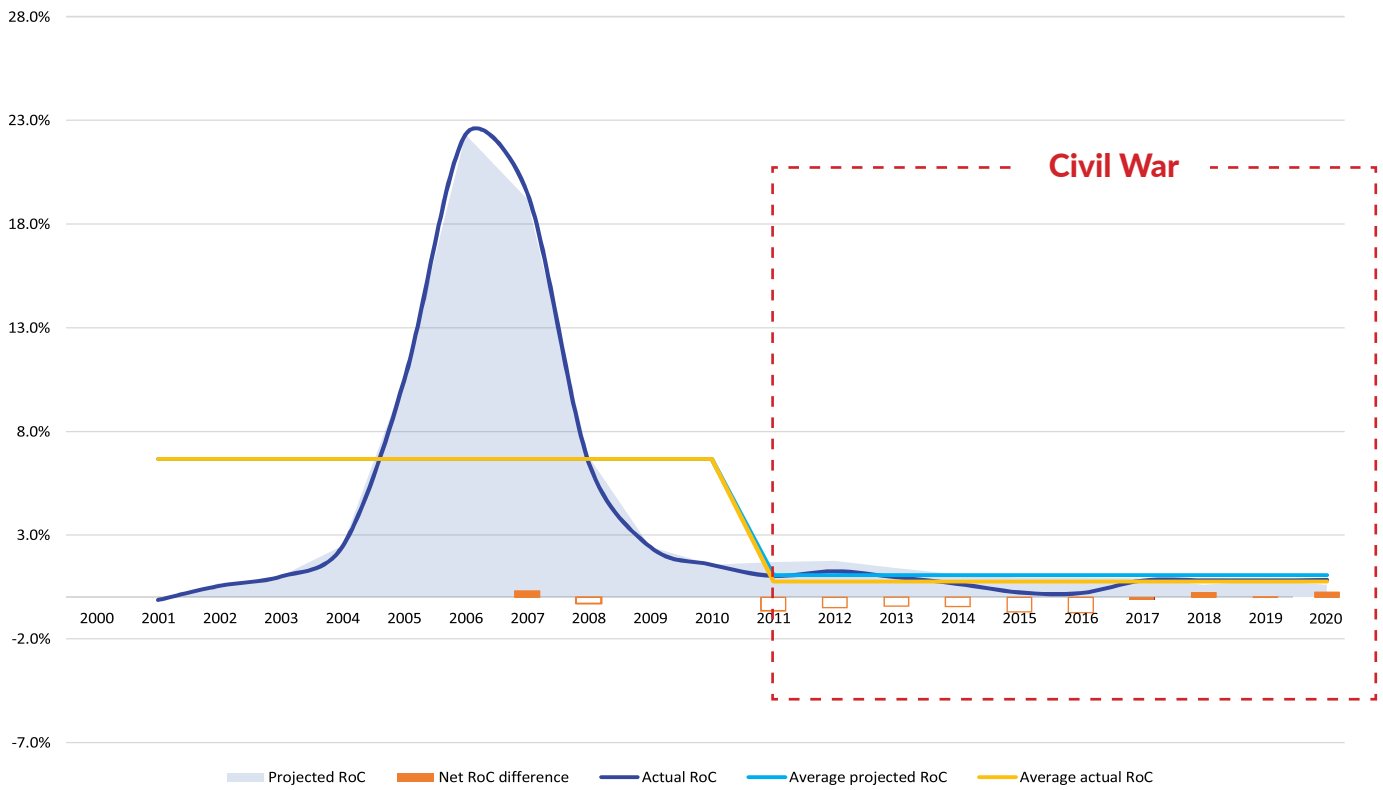
The but-for-the-conflict teledensity model projects that mobile penetration would have exceeded the adult population by 2013. This is not uncommon in the region. For example, Algeria has achieved 71.3 percent mobile penetration against an adult population of only 69 percent, Tunisia has achieved 76.6 percent mobile penetration against an adult population of 76 percent, and Egypt has achieved 68.1 percent mobile penetration against an adult population of 66 percent.

Despite the lack of competition from private operators before 2011, Libya’s mobile telecom sector prospered relative to neighboring countries. It stagnated for seven years following the revolution and civil unrest, but the gap in total mobile teledensity remained relatively small, at 1.5 percentage points, aided by growth recovery since 2017.

Libya’s mobile penetration growth rate

Libya’s mobile penetration growth rate (the year-on-year rate of change in penetration) is also considered during 2000–20. The results are depicted in figure 16.

Figure 16: Libya’s mobile penetration growth rate, 2000–20



Source: MacMillan Keck.
 Note: RoC = Rate of Change.

Mobile penetration growth rates have remained relatively flat since the inception of the conflict. The increased deceleration in 2015 and 2016 correspond to the escalations in violence in 2014 and 2015. Libya experienced positive growth rates from 2018 through 2020, which appears to reflect some pent-up demand released by improved domestic stability and the launch of 4G networks (and with additional subscriber identity modules rereleased for data-only usage), although these figures may not yet capture the impacts of the escalation of conflict during the first nine months of 2020.

The yellow line in figure 16 represents the average annual mobile penetration growth rate during two periods – the pre-conflict period from 2000 through 2010 and the conflict period from 2011 through 2020. The grey line in the figure represents the average but-for-the-conflict annual penetration growth rate during the conflict period. The difference between the grey and yellow lines during the conflict period is the average annual growth rate deficit. The difference, as graphed in figure 16, appears small because both the actual and but-for-the-conflict growth rates since 2011 are relatively low as Libya approaches saturation of the pool of unique mobile subscribers. However, with an actual annual growth rate of 0.76 percent and a but-for-the-conflict annual growth rate of 1.07 percent, Libya experienced a 28.9 percent deficit in its average annual growth rate during the conflict.

4.5 Correlating Libya's supply-side investment climate and teledensity

The assessment of Libya can inform the overall view of the relationship between the supply-side telecom investment climate and teledensity evolution during the conflict.

Libya was assessed as having an internal factor investment climate rating of 4 and an external factor investment climate rating of 3. Key internal factors included (1) state ownership and control of all mobile operators, (2) the state's failure to liberalize the sector despite stated intentions, and (3) the state's failure to establish an independent regulator or issue new licenses to private investors. Key external factors included (1) broad sanctions against designated individuals and entities, (2) travel difficulties, (3) lack of international aid, and (4) lack of effective international security interventions.

Libya's average annual teledensity growth rate suffered a 29 percent decline – the growth rate deficit – compared with its projected average annual but-for-the-conflict teledensity growth rate. Nonetheless, teledensity continued to grow (albeit at a reduced rate) during the conflict. Significantly, Libya continued to enjoy the benefits of the high teledensity level that had been achieved prior to the onset of the conflict. It also enjoyed the benefits of its comparative pre-conflict infrastructure advantage and the state's investments to restore damaged or destroyed infrastructure in 2012.

5

Federal Republic of Somalia

This component of the study assesses the impact of civil war and civil unrest on the mobile markets in Somalia (inclusive of Puntland and Somaliland) during 2000–20.

5.1 Somali context

The following passages provide information on Somalia's geography, demographics, and economy; the conflict; and the telecom sector.

Map 4: Somalia



Source: UN Geospatial > Somalia (December 2011), <https://www.un.org/geospatial/content/somalia>.

Somalia's geography, demographics, and economy

Somalia is located in East Africa, bordering the Gulf of Aden and the Indian Ocean, east of Ethiopia (map 4). Forming the tip of the area known as the Horn of Africa, Somalia is also bordered by Kenya to the southwest and Djibouti to the northwest. It has the longest coastline of any country in Africa's mainland.

In 2020, Somalia's population was about 15.9 million,³⁵⁶ and the country's land area is 627,340 square kilometers³⁵⁷ (about 242,217 square miles), in both cases inclusive of the disputed territories of Somaliland and Puntland. Population density varies widely throughout Somalia. The least densely populated areas are in the northeast and central regions and areas along the Kenyan border. The most populated areas are in and around the cities of Mogadishu, Marka, Boorama, Hargeysa, and Baidoa.³⁵⁸ In 2020, over 46.1 percent of the total population lived in urban areas.³⁵⁹ Life expectancy at birth in 2019 was 57 years.³⁶⁰

Somalia occupies a strategic location in the Horn of Africa. Over 70 percent of the land area is used for pastures,³⁶¹ which is predominantly nomadic pastoralism, with a growing private sector livestock export industry. Goats, sheep, camels, and cattle are the primary animals reared by pastoralists, with Somalia being second in global sheep exports after Australia. This industry is the largest source of revenue in Somalia, surpassing crop production at fourfold in value, employing over 60 percent of the population, and accounting for over 80 percent of Somalia's foreign exchange earnings.³⁶² In 2020, about 9.5 percent of

the land area was forest,³⁶³ representing a decline of 83 percent since the 1980s.³⁶⁴

In 2020, gross domestic product (GDP) per capita, based on purchasing power parity, was about USD 875.³⁶⁵ GDP composition by sector of origin in 2013 was 60.2 percent agriculture, 7.4 percent industry, and 32.5 percent services.³⁶⁶ Somalia's primary sources of natural capital are petroleum and mineral resources, fisheries, pasturelands, and forests; agricultural land and water are relatively minor contributors to natural capital wealth.³⁶⁷ The country's primary legal exports in 2019 were gold, sheep and goats, sesame seeds, insect resins, and cattle,³⁶⁸ but exports of charcoal³⁶⁹ and re-exports of drugs³⁷⁰ also contribute outside the formal economy. In 2019, about 32.4 percent of the adult population (those age 15 and over) participated in the formal labor force, and the estimated unemployment rate was 21.4 percent.³⁷¹ In 2020, only about 36 percent of the population had electricity, in 2019 only 39 percent had access to sanitary facilities, and 56.5 percent had access to treated drinking water.³⁷² Water scarcity is a major environmental challenge.³⁷³ The literacy rate is 37.8 percent, including 49.7 percent of males and 25.8 percent of females.³⁷⁴

The conflict in Somalia

The current conflict in Somalia began when General Barre was forcibly removed from power in January 1991 at the onset of a long and bloody civil war that has been followed by an enduring period of civil instability. Barre's removal left a power vacuum, plunging Somalia into a decades-long cycle of instability and civil war, characterized in part by north-south divisions tracing back to the colonial era, and

356 World Bank > Data > Population, Total – Somalia (2020).

357 World Bank > Land Area (sq. km) – Somalia (2020).

358 IndexMundi > Factbook > Countries > Somalia > Somalia Geographic Profile (2021), https://www.indexmundi.com/somalia/geography_profile.html.

359 World Bank > Data > Urban Population (% of total population) – Somalia (2020), <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=SO>.

360 UNESCO Institute for Statistics > By Country > Somalia > General Information > Life Expectancy at Birth (years) (2019), <http://uis.unesco.org/en/country/so>.

361 World Bank > Data > Indicators > Agricultural Land (% of land area) – Somalia (2018), <https://data.worldbank.org/indicator/AG.LND.AGRI.ZS?locations=SO>.

362 Somalia Water and Land Information Management project > Land Use (Food and Agriculture Organization of the United Nations, Rome, 2021), <http://www.faoswalim.org/land/land-use>.

363 World Bank > Data > Indicator > Forest Area (% of land area) – Somalia (2020), <https://data.worldbank.org/indicator/AG.LND.FRST.ZS?locations=SO>.

364 See "Reforestation Somalia from the Air," Delegate: The UN Intranet-iSeek for Member States (United Nations, New York, April 23, 2021), <https://www.un.org/en/delegate/reforesting-somalia-air>.

365 World Bank, World Development Indicators (World Bank, Washington, DC, 2021), <https://databank.worldbank.org/source/world-development-indicators>.

366 IndexMundi > Countries > Somalia > Economy > Somalia GDP – Composition by Sector (2013 est.), https://www.indexmundi.com/somalia/gdp_composition_by_sector.html.

367 See Abdirahman Zeila Dubow and Tracy Hart, Somalia Country Environmental Analysis: Diagnostic Study on Trends and Threats for Environmental and Natural Resources Challenges (World Bank, Washington, DC, June 2020): 24, <https://openknowledge.worldbank.org/bitstream/handle/10986/34058/Somalia-Country-Environmental-Analysis-Diagnostic-Study-on-Trends-and-Threats-for-Environmental-and-Natural-Resources-Challenges.pdf;jsessionid=E-CAE1485208FE37C81BC63A15E4EA475?sequence=4>.

368 Organization of Economic Complexity > Profile > Country > Somalia (2019), <https://oec.world/en/profile/country/som>.

369 See "Somalia Calls for International Cooperation to Stop Illegal Charcoal Trade," Press Release (United Nations Environment Programme, Nairobi, Kenya, May 7, 2018), <https://www.unep.org/news-and-stories/press-release/somalia-calls-international-cooperation-stop-illegal-charcoal-trade>.

370 See Mohamed Daghar, "Regulating Khat Could Disrupt East Africa's Illegal Drug Economy," ISS Today (Institute for Security Studies, Pretoria, South Africa, April 29, 2021), <https://issafrica.org/iss-today/regulating-khat-could-disrupt-east-africas-illegal-drug-economy>.

371 Somalia National Bureau of Statistics, Somali Labor Force Survey Report 2019 (Somalia National Bureau of Statistics, Mogadishu, September 2021), 5, https://www.nbs.gov.so/wp-content/uploads/2021/10/LFS-Report_2021.pdf.

372 World Bank > Databank > World Development Indicators > 2020, 2019, <https://databank.worldbank.org/source/world-development-indicators>.

373 See Nita Bhalla and Mohammed Omer, "Three-Quarters of Somali Families Found Lacking Water as Drought Looms," Reuters (March 22, 2021), <https://www.reuters.com/article/us-global-water-climate-somalia/three-quarters-of-somali-families-found-lacking-water-as-drought-looms-idUSKBN2BE1X3>.

374 Matthew Cline, "10 Important Facts about Girls' Education in Somalia," Blog Post (Borgen Project, Tacoma, WA, July 28, 2018), <https://borgenproject.org/tag/literacy-in-somalia/#>.

lacking an effective centralized government.³⁷⁵ A US-led UN peacekeeping coalition landed in Somalia in 1993 and stayed until 1995, when Somalia still had no government. Puntland (forming the area east of Somaliland in the northeast) also declared itself an autonomous region in 1998, but did not seek full independence, instead intending to remain part of a federal Somali state.³⁷⁶

From April through May 2000, a series of meetings known as the Somalia National Peace Conference were held in Djibouti under the auspices of the Intergovernmental Authority on Development, a regional intergovernmental body with participation by Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan, and Uganda. The conference sought to bring together representatives of the warring factions of Somalia to end the civil war that had claimed more than 300,000 lives since 1991. The conference led to the establishment of the Somali Transitional National Government (TNG). The outcome was militarily and politically opposed by the Somalia Reconciliation and Restoration Council, which was formed by faction leaders including Hussein Mohamed Farrah Aidid and Mohamed Dhere. The Transitional National Charter, which established the TNG, recognized de facto regional autonomy and the existence of new entities in the north of the former Somalia, home to relatively homogeneous clans.³⁷⁷

The TNG was not successful. Although by 2002 it had all the organs of a national government, including executive, legislative, and judicial structures; a police force; and a standing army, its institutions were weak, lacking territorial control, the ability to raise tax revenue, and basic physical resources. Due to these limitations, the TNG was unable to provide basic social services. Ministers and legislators often expressed frustration at being shut out of the real decision-making process, and often receiving irregular and limited salaries. The TNG's internal problems led to the replacement of the prime minister four times in three years.³⁷⁸ The administrative body was bankrupt by

December 2003, when its mandate ended at the same time. Even as the TNG was clearly failing, a successor government known as the Transitional Federal Government (TFG) was being brokered, again under the auspices of the Intergovernmental Authority on Development. The product of two years of international mediation, the TFG was the 14th attempt to create a functioning government in Somalia since the end of Muhammad Siad Barre's dictatorial rule in 1991. Formed in October 2004, the TFG saw a peaceful handover of presidential power from TNG leader Abdiqasim Salad Hassan to Abdullahi Yusuf Ahmed. Still, the TFG "governed" from neighboring Kenya until June 2005. Its Parliament did not convene on Somali soil until February 2006, when it met in a converted grain warehouse in the western city of Baidoa because security concerns kept the legislature from entering Mogadishu. Even when it did convene, the TFG lacked cohesion, which undermined its power.³⁷⁹

The TFG was unable to establish a government seat in Mogadishu or consolidate power.³⁸⁰ The TFG faced fierce opposition from the Islamic Courts Union (ICU) – a coalition of Islamic courts that arose as an indigenous security response to the anarchy prevailing around Mogadishu and southern Somalia after the fall of the Barre regime – which took effective control of Mogadishu in 2006.³⁸¹ The TFG, supported by Ethiopia, defeated ICU forces in 2007 and entered Mogadishu, but it was not viewed by the local population as a legitimate government and failed to establish control over southern Somalia. After 2009, the civil war has concentrated in the southern and central areas of Somalia. Thus, the TFG nominally governed Somalia from 2005 until 2012, but it never gained control over much of the territory.³⁸²

The ICU was eventually disbanded in 2007, but its armed wing transformed into Al-Shabaab, a militant group associated with al-Qaeda that continues to serve as a primary element of Somalia's instability.³⁸³

375 Sally Healy and Mark Bradbury, "A Brief History of the Somali Conflict," in *Whose Peace Is It Anyway? Connecting Somali and International Peacemaking* (Conciliation Resources, London, February 2010), 10, <https://www.c-r.org/accord/somalia/endless-war-brief-history-somali-conflict>.

376 "Puntland Profile," BBC News (March 11, 2019), <https://www.bbc.com/news/world-africa-14114727>.

377 See, generally, AMISOM > About Somalia > Somalia Peace Process (African Union Mission in Somalia, 2021), <https://amisom-au.org/about-somalia-somali-peace-process/>.

378 See, generally, Stig J. Hansen "Warlords and Peace Strategies: The Case of Somalia," *Journal of Conflict Studies* 23, no. 2 (2003): 57–78, https://www.erudit.org/en/journals/jcs/2003-v23-n2-jcs23_2/jcs23_2art04.pdf.

379 See Stephanie Hanson and Eben Kaplan, "Somalia's Transitional Government" (Council on Foreign Relations, New York, May 12, 2008), <https://www.cfr.org/background/somalias-transitional-government>.

380 Political Instability Task Force, *Polity IV Country Report: Somalia* (Wilson Center, Washington, DC, 2010), <http://www.systemicpeace.org/polity/Somalia2010.pdf>.

381 Center for International Security and Cooperation > Mapping Militants > Profiles > Islamic Courts Union (Center for International Security and Cooperation, Stanford University, CA, 2019), <https://cisac.fsi.stanford.edu/mappingmilitants/profiles/islamic-courts-union>.

382 See Harish Venugopalan, "Somalia: A Failed State?" ORF Issue Brief (Observer Research Foundation, New Delhi, India, February 6, 2017), <https://www.orfonline.org/research/somalia-a-failed-state/>.

383 Center for International Security and Cooperation > Mapping Militants > Profiles > Islamic Courts Union (Center for International Security and Cooperation, Stanford University, CA, 2019), <https://cisac.fsi.stanford.edu/mappingmilitants/profiles/islamic-courts-union>.

An effort to establish a single federal government was attempted in 2012. A new Federal Parliament of Somalia was inaugurated as the legislature of the Federal Government of Somalia, the first permanent central government in the country since the start of the civil war. With a new Constitution and a new Parliament representing diverse parties and factions, Somalia's national political structure appeared more stable.³⁸⁴ Hassan Sheikh Mohamud, an academic and activist with a moderate stance, was elected president on September 10, 2012. His term was not highly successful, and he was nearly impeached. As the original goal of holding direct elections in 2016 proved impossible, preparations were instead made to hold indirect elections. The Parliament's election of Somalia's new president occurred on February 8, 2017. After multiple rounds of voting, former Prime Minister Mohamed Abdullahi Mohamed emerged with a commanding lead, Mohamud conceded to Mohamed, and Mohamed was sworn in as Somalia's new president.³⁸⁵ This step was widely heralded as the most positive step since 1991. In April 2021, Somalia's President signed a disputed law extending his mandate for two years, setting the nation on a collision course with donors who strongly opposed the move.³⁸⁶ But elections were finally held for the house of the People between November 2021 and April 2021, and a new President was elected in May 2022.

Guerrilla warfare in the areas of Somalia other than Somaliland and Puntland has been ongoing. This primarily involves clashes with Al-Shabaab and other militants by forces of the officially recognized government and supporting international forces. In 2016, more than 150 separate armed militia groups were active in Somalia,³⁸⁷ and in 2020, some 60 separate armed groups were active,³⁸⁸ indicating the extent of the security challenges and weakness of centralized authority. In addition to violence and COVID-19, Somalia is also dealing with severe drought³⁸⁹ and locusts.³⁹⁰

In summary, since 1991, Somalia has suffered an unending, sometimes undulating, civil war among its rival clans, aspiring separate states, warlords, and Islamic groups. Officially recognized state institutions have repeatedly failed despite extensive international efforts to rebuild them and stabilize the country. Mogadishu-based national governments have had limited operational capacity and physical reach into most of the country. They have been debilitated by local political competition among clans and powerbrokers. The official state was mostly unable to deliver governance to local populations while battling strong and agile military opponents and separatism. Islamist groups that have administered uniform rule also have connections to global jihadist movements and participate in terrorism, rendering them unacceptable to the international community and causing resentment by Somalis. However, the internationally recognized state has not been able to provide adequate and equitable governance.³⁹¹

Somalia's telecom sector

In 1990, Somalia had only 8,500 fixed lines, mostly located in Mogadishu, and mobile networks had not yet been introduced.³⁹² All infrastructure was then under government control.³⁹³ Most of it was destroyed during the violence that ensued after General Barre was deposed in 1991.³⁹⁴

After the government fell in 1991, Somalia effectively ceased regulating its telecom sector (a situation that would continue for about 27 years). Although the Barre regime had decreed a telecommunication law in 1975, this was at a time when the telecom sector had been nationalized³⁹⁵ and the law did not address topics relevant to private sector participation in a competitive market.³⁹⁶ In addition, there was no longer a viable government to implement or enforce the law. As a result, the early growth of Somalia's mobile market occurred without any legal framework or regulation. Anyone with enough capital could enter the market. The evolution of Somalia's telecommunications

384 See "Somalia Swears In Historic New Parliament," Al Jazeera (August 23, 2012), <https://www.aljazeera.com/news/2012/8/23/somalia-swears-in-historic-new-parliament>.

385 Britannica > Place > The Somali Republic > A New Government (2021), <https://www.britannica.com/place/Somalia/A-new-government>.

386 "Somalia's President Signs Law Extending His Term, 15 Killed in Attack," Reuters (April 14, 2021), <https://www.reuters.com/world/africa/somalias-president-signs-law-extending-his-mandate-two-years-state-news-agency-2021-04-14/>.

387 Brookings Institution, "Somalia's Path to Stability" (October 2, 2019), <https://www.brookings.edu/blog/future-development/2019/10/02/somalia-path-to-stability/>.

388 World Bank, "Somalia Crisis Recovery Project Appraisal Document" (World Bank, Washington, DC, April 29, 2020), <http://documents1.worldbank.org/curated/en/155201589207732331/pdf/Somalia-Crisis-Recovery-Project.pdf>.

389 UN Office for the Coordination of Humanitarian Affairs (OCHA), "Somalia Humanitarian Response Plan" (OCHA, New York, February 2021), https://reliefweb.int/sites/reliefweb.int/files/resources/HRP_2021-Somalia.pdf.

390 World Bank, Somalia – "Re-Engagement and Reform Supplemental Development Policy Financing Program Document" (World Bank, Washington, DC, June 9, 2020), <http://documents1.worldbank.org/curated/en/839191593223511618/pdf/Somalia-Re-engagement-and-Reform-Supplemental-Development-Policy-Financing.pdf>.

391 Vanda Felbab-Brown, "Developments in Somalia," Testimony before the Standing Committee on Foreign Affairs and International Development of the Canadian House of Commons (Brookings, Washington, DC, November 14, 2018), <https://www.brookings.edu/testimonies/developments-in-somalia/>.

392 See Robert L. Feldman, "Somalia: Amidst the Rubble, a Vibrant Telecommunications Infrastructure," *Review of African Political Economy* 34, no. 113 (2007): 565–72, https://community.apan.org/cfs-file/__key/docpreview-s/00-00-00-06-64/2007_2D00_09_2D00_01-Somalia-Amidst-the-Rubble_2D00_a-Vibrant-Telecommunications-Infrastructure-2800_Feldman_2900_.pdf.

393 See "Hormuud, Somtel, Nationlink Sign Interconnection Deal," *CommsUpdate* (TeleGeography, Washington, DC, July 23, 2014), <https://www.commsupdate.com/articles/2014/07/23/hormuud-somtel-nationlink-sign-interconnection-deal/>.

394 Robert L. Feldman, "Somalia: Amidst the Rubble, a Vibrant Telecommunications Infrastructure," *Review of African Political Economy* 34, no. 113 (2007): 565–72, https://community.apan.org/cfs-file/__key/docpreview-s/00-00-00-06-64/2007_2D00_09_2D00_01-Somalia-Amidst-the-Rubble_2D00_a-Vibrant-Telecommunications-Infrastructure-2800_Feldman_2900_.pdf.

395 See Peter T. Leeson, "Better Off Stateless: Somalia before and after Government Collapse," *Journal of Comparative Economics* 35 (2007): 689, 693, https://www.peterleeson.com/Better_Off_Stateless.pdf.

396 See Ibrahim Hashi Jama, ed., *Somaliland Telecommunications & Posts Laws* (SomalilandLaw.org, 2019), <http://www.somalilandlaw.com/communications>

markets, as with other key industries, followed geographic boundaries that arose or reemerged during the conflict, thus often resulting in separate operators or operations in central and southern Somalia, Puntland, and Somaliland. Very small aperture terminals were among the first forms of telecom infrastructure introduced after the national government's fall.³⁹⁷ Another early form of communication was the use of high-frequency radios looted from military camps, which were used throughout Mogadishu and many villages in the countryside (and were still extensively used in the countryside as late as 2002).³⁹⁸ Terrestrial wireless installations, both mobile and fixed, were the next technologies to be deployed, representing the first significant post-1991 telecom infrastructure investments in Somalia.

From the outset, development of the foreign remittance business and Somalia's post-1991 telecom sector had a symbiotic relationship.³⁹⁹ After the collapse of the formal banking system, remittance providers in Somalia employed a traditional, trust-based money transfer business model, known as *hawalas*, to enable expatriate Somalis to send funds to relatives. *Hawalas* were an ancient money transfer system, developed in India, by which providers of the remittance service (*hawaladars*) trade among themselves in commodities or repayment of existing debts, rather than moving funds, to balance their books after effecting remittances for customers in different nations.⁴⁰⁰ The telecom business was essential to enable the *hawalas* and was also akin to the remittance business because profits came from charges to foreign carriers for overseas expatriates to call back home.⁴⁰¹

In 1994, Al-Barakaat, which had entered Somalia's remittance market in 1987 and grown to prominence during the civil war, entered the telecom market by founding Barakaat Telecommunications Company. Telecom Somalia (operating as Olympic Telecom) also entered the market in 1994. Barakaat and Olympic were followed in 1997 by NationLink Telecommunications, which was founded by the owners of Tawfiq NationLink, one of the oldest remittance firms in Mogadishu.⁴⁰² Somtel was founded in Somaliland in 1998.⁴⁰³

By 2001, Barakaat had become Somalia's largest telecom operator. However, on November 7, 2001, Barakaat was abruptly shut down when Concert Communications (jointly owned by British Telecom and AT&T) terminated their relationship as required by US sanctions designating Barakaat as a terrorist organization in the wake of the September 11 terrorist attacks.⁴⁰⁴ Barakaat had been under scrutiny by US authorities since 1996 due to the large sums of money that moved across borders on a daily basis and suspicions by US financial institutions, which had filed hundreds of reports, about their connection with terrorism emanating from Somalia.⁴⁰⁵

397 Robert L. Feldman, "Somalia: Amidst the Rubble, a Vibrant Telecommunications Infrastructure," *Review of African Political Economy* 34, no. 113 (2007): 565–72, https://community.apan.org/cfs-file/_key/docpreview-s/00-00-00-06-64/2007_2D00_09_2D00_01-Somalia-Amidst-the-Rubble_2D00_a-Vibrant-Telecommunications-Infrastructure-_2800_Feldman_2900_.pdf.

398 Roland Marchal, *A Survey of Mogadishu's Economy* (European Commission, Brussels, Belgium, August 2002), 22, https://eeas.europa.eu/archives/delegations/somalia/documents/more_info/mogadishu_economic_survey_en.pdf.

399 Roland Marchal, *A Survey of Mogadishu's Economy* (European Commission, Brussels, Belgium, August 2002), 22, https://eeas.europa.eu/archives/delegations/somalia/documents/more_info/mogadishu_economic_survey_en.pdf.

400 See Mohammed El-Qorchi, "Hawala," *Finance & Development* (International Monetary Fund, Washington, DC, December 2002), <https://www.imf.org/external/pubs/ft/fandd/2002/12/elqorchi.htm>.

401 Roland Marchal, *A Survey of Mogadishu's Economy* (European Commission, Brussels, Belgium, August 2002), 22, https://eeas.europa.eu/archives/delegations/somalia/documents/more_info/mogadishu_economic_survey_en.pdf.

402 Roland Marchal, *A Survey of Mogadishu's Economy* (European Commission, Brussels, Belgium, August 2002), 24, https://eeas.europa.eu/archives/delegations/somalia/documents/more_info/mogadishu_economic_survey_en.pdf.

403 "Dahabshii CEO Reveals Secret to International Success in Financial Times Interview," Press Release, allAfrica (July 8, 2011), <https://allafrica.com/stories/201107081390.html>.

404 See "Telecommunications Shut Down," *The New Humanitarian* (November 15, 2001), <https://www.thenewhumanitarian.org/news/2001/11/15/telecommunications-shut-down>.

405 See John Roth, Douglas Greenburg, and Serena Wille, "Monograph on Terrorist Financing," Staff Report to the Commission (US National Commission on Terrorist Attacks Upon the United States, Washington, DC, 2004) 67–86, https://govinfo.library.unt.edu/911/staff_statements/911_TerrFin_Monograph.pdf.

The US decision to shut down Barakaat initially caused chaos and hardship for thousands of consumers in Somalia's remittances and telecom sectors.⁴⁰⁶ But a replacement enterprise, Hormuud Telecom, based in Mogadishu and backed by Barakaat's former backer, Ahmed Nur Ali Jimaale,⁴⁰⁷ local Somali investors, and former Barakaat employees,⁴⁰⁸ quickly entered the Somali telecom market to fill the void in 2002.⁴⁰⁹ Hormuud affiliates also entered the Somaliland telecom market in 2003 under the Telesom brand⁴¹⁰ and the Puntland telecom market under the Golis brand; hence, the acronym for Hormuud Telesom Golis (HTG).⁴¹¹

The HTG group quickly launched a new remittance business that enabled it to reclaim a leading role in the money transfer market. The HTG entities adopted a relatively unusual and complex share ownership structure involving thousands of shareholders in each entity to ensure that all relevant stakeholders had an interest in the entity's success.⁴¹²

After Mogadishu had been without internet for about two months following the Barakaat shutdown, and before Hormuud formed and entered the market, the other two incumbents in central and southern Somalia, Olympic and NationLink, established their own internet links in

Mogadishu.⁴¹³ Other operators also entered the market during this time and the ensuing years. NetXchange entered the market in late 2001 or early 2002.⁴¹⁴ Somafone entered the Mogadishu market in 2004⁴¹⁵ and expanded to Puntland in 2009.⁴¹⁶ The Dahabshiil remittances group acquired a controlling stake in Somaliland's incumbent Somtel in 2008.⁴¹⁷ Somcable entered the Somaliland market in 2009, and was issued an exclusive 25-year license by the Somaliland licensing authority to deploy Somaliland's first fiber optic infrastructure, under a concession that also authorized last-mile fiber and wireless access deployments.⁴¹⁸

All these operators offered mobile services and many also offered fixed services using wireless technology.⁴¹⁹ By 2007, Somalia (including Somaliland and Puntland) was home to up to nine telecom operators, with 105,000 fixed lines⁴²⁰ and nearly 654,000 unique mobile subscribers.⁴²¹

Multiple mobile networks, all Global System for Mobile Communications initially, were eventually upgraded for broadband. In mid-2011, Telesom, HTG's Somaliland affiliate, launched 3G service,⁴²² while Hormuud launched 3G service in central and southern Somalia in early 2013.⁴²³ Somtel deployed 3G in Somaliland in 2010 and expanded its 3G network in March 2012.⁴²⁴ Somtel announced

- 406 See Khalid Mustafa Medani, "Financing Terrorism or Survival? Informal Finance and State Collapse in Somalia and the US War on Terrorism," Middle East Report (Middle East Research and Information Project, Chicago, IL, Summer 2002), <https://merip.org/magazine/223/>.
- 407 See UN Security Council, "Security Council Committee on Somalia and Eritrea Adds One Individual to List of Individuals and Entities," Press Release (United Nations, New York, February 17, 2012), <https://www.un.org/press/en/2012/sc10545.doc.htm>.
- 408 See Jos Meester, Ana Uzelac, and Claire Elder, Transnational Capital in Somalia: Blue Desert Strategy, CRA Report (Clingendael Netherlands Institute of International Relations, Wassenaar, Netherlands, June 2019), 45, box 6, <https://www.clingendael.org/sites/default/files/2020-02/transnational-capital-in-somalia.pdf>.
- 409 Hiraal Institute, Doing Business in a War Zone: Somali Banks and Telecoms Providers (Hiraal Institute, April 2019), <https://hiraalinstitute.org/wp-content/uploads/2019/04/English-PDF-final.pdf>.
- 410 "Telsom Deploys GSM Network," CommsUpdate (TeleGeography, Washington, DC, September 25, 2003), <https://www.commsupdate.com/articles/2003/09/25/telsom-deploys-gsm-network/>.
- 411 See Jos Meester, Ana Uzelac, and Claire Elder, Transnational Capital in Somalia: Blue Desert Strategy, CRA Report (Clingendael Netherlands Institute of International Relations, Wassenaar, Netherlands, June 2019), 45, box 6, <https://www.clingendael.org/sites/default/files/2020-02/transnational-capital-in-somalia.pdf>.
- 412 See Jos Meester, Ana Uzelac, and Claire Elder, Transnational Capital in Somalia: Blue Desert Strategy, CRA Report (Clingendael Netherlands Institute of International Relations, Wassenaar, Netherlands, June 2019), 45, box 6, <https://www.clingendael.org/sites/default/files/2020-02/transnational-capital-in-somalia.pdf>.
- 413 See Economist Intelligence Unit (EIU), Country Report: Ethiopia, Eritrea, Somalia & Djibouti, EIU Country Report (Economist Intelligence Unit, London, March 2002), 33, https://www.iuj.ac.jp/mlic/EIU/Report/Ethiopia/March_2002_Main_report.pdf.
- 414 "Internet Returns to Mogadishu," The New Humanitarian (January 23, 2002), <https://www.thenewhumanitarian.org/report/29898/somalia-internet-returns-mogadishu>.
- 415 "New GSM Network for War Torn State," CommsUpdate (TeleGeography, Washington, DC, December 21, 2004), <https://www.commsupdate.com/articles/2004/12/21/new-gsm-network-for-war-torn-state/>.
- 416 "Somafone Expands Network in Puntland," CommsUpdate (TeleGeography, Washington, DC, November 6, 2009), <https://www.commsupdate.com/articles/2009/11/06/somafone-expands-network-in-puntland/>.
- 417 "Dahabshiil CEO Reveals Secret to International Success in Financial Times Interview," Press Release, allAfrica (July 8, 2011), <https://allafrica.com/stories/201107081390.html>.
- 418 "Somcable Partners Alepo, Airspan for Somaliland LTE Launch," CommsUpdate (TeleGeography, Washington, DC, January 6, 2016), <https://www.commsupdate.com/articles/2016/01/06/somcable-partners-alepo-airspan-for-somaliland-lte-launch/>.
- 419 See "Somalia Hopes to End Telecoms Sector Anarchy," CommsUpdate (TeleGeography, Washington, DC, January 17, 2011), <https://www.commsupdate.com/articles/2011/01/17/somalia-hopes-to-end-telecoms-sector-anarchy/>.
- 420 Robert L. Feldman, "Somalia: Amidst the Rubble, a Vibrant Telecommunications Infrastructure," *Review of African Political Economy* 34, no. 113 (2007): 565–72, https://community.apan.org/cfs-file/_key/docpreview-s/00-00-00-06-64/2007_2D00_09_2D00_01-Somalia-Amidst-the-Rubble_2D00_a-Vibrant-Telecommunications-Infrastructure_-2800_Feldman_2900_.pdf.
- 421 GSMA Intelligence database (April 30, 2021).
- 422 "Telesom Unveils 3G Network in Somaliland," CommsUpdate (TeleGeography, Washington, DC, July 14, 2011), <https://www.commsupdate.com/articles/2011/07/14/telesom-unveils-3g-network-in-somaliland/>.
- 423 "HorTel Launches 3G Service," CommsUpdate (TeleGeography, Washington, DC, January 2, 2013), <https://www.commsupdate.com/articles/2013/01/02/hortel-launches-3g-service/>.
- 424 "Somtel Expands 3G Network Coverage," CommsUpdate (TeleGeography, Washington, DC, March 28, 2012), <https://www.commsupdate.com/articles/2012/03/28/somtel-expands-3g-network-coverage/>.

contracts to deploy 4G service in May 2014.⁴²⁵ Somtel later expanded its service into Puntland.⁴²⁶ In 2018, Somtel expanded 3G and 4G coverage to Mogadishu and other areas in central and southern Somalia,⁴²⁷ becoming a national operator. Somcable launched 4G fixed and mobile services in Somaliland in 2016.⁴²⁸ Somnet Telecom, a new operator based in central and southern Somalia, announced the launch of 4G service in Mogadishu in March 2017.⁴²⁹ Globalsom and Sahal Telecom had also launched time division duplex long-term evolution networks in Mogadishu by this time.⁴³⁰

In July 2021, HTG announced plans to extend its 4G coverage to the entirety of Somalia, including rural areas, despite not having a license to do so.⁴³¹

Somalia also developed fiber-based domestic backhaul and international links. Dalkom Somalia, which is privately owned by Somali investors, operates the Mogadishu local landing station of the East Africa Submarine System submarine cable system, which was put into service in 2010, and in which Dalkom also owns 10 percent of the capacity.⁴³² In late 2013, Liquid Telecom completed a cross-border fiber link from Kenya, which interconnected with microwave links built by Hormuud from the border to Mogadishu.⁴³³ Somcable developed a fiber backbone in Somaliland in 2014.⁴³⁴ In March 2021, service commenced at landings in Mogadishu and Bosaso (in Puntland) over the Djibouti Africa Regional Express 1 submarine cable in which Somtel has a minority share alongside Djibouti Telecom.⁴³⁵

As Somalia's mobile market matured, some operators grew faster than others and have emerged as market leaders. Publicly available data on market revenue or subscriber shares are limited and not necessarily reliable. HTG is the acknowledged leader in market share in all three geographic submarkets, having grown from some 50 percent of subscribers in 2010 to some 75 percent of subscribers in 2020, while Somtel comes in second in the Puntland and Somaliland submarkets and NationLink comes in second in central and southern Somalia.⁴³⁶ Although mobile tariffs have been driven down and remain very low by international standards,⁴³⁷ the trend in market shares suggests that HTG has attained dominance in the market. Almost certainly, the growth in market share is attributable to HTG's success in becoming the dominant player for mobile money.⁴³⁸

Following the 1991 overthrow of the Barre regime, the 1975 national telecom law adopted for a state-owned monopoly did not offer Somalia a fit-for-purpose legal framework to rebuild its telecom sector. Puntland was the first to establish a new legal framework for telecommunications, passing an initial communications law in December 2007⁴³⁹ (nine years after declaring its independence), and updating and replacing that law in November 2020.⁴⁴⁰ Somaliland passed a telecommunications law in 2011 (20 years after declaring its independence).⁴⁴¹ Somalia's national government, whose legislative acts effectively cover central and southern Somalia and the Mogadishu area, did not pass a new telecom law until 2017, with support from the World Bank Group (26 years after removal of the Barre regime).

- 425 "Somtel Rolls Out LTE in Somalia with Alcatel-Lucent," CommsUpdate (TeleGeography, Washington, DC, May 21, 2014), <https://www.commsupdate.com/articles/2014/05/21/somtel-rolls-out-lte-in-somalia-with-alcatel-lucent/>.
- 426 See "Somtel Set to Roll Out LTE-A," CommsUpdate (TeleGeography, Washington, DC, March 28, 2019), <https://www.commsupdate.com/articles/2019/03/28/somtel-set-to-roll-out-lte-a/>.
- 427 "Somtel Expands Services to Mogadishu," CommsUpdate (TeleGeography, Washington, DC, November 6, 2018), <https://www.commsupdate.com/articles/2018/11/06/somtel-expands-services-to-mogadishu/>.
- 428 "Somcable Partners Alepo, Airspan for Somaliland LTE Launch," CommsUpdate (TeleGeography, Washington, DC, January 6, 2016), <https://www.commsupdate.com/articles/2016/01/06/somcable-partners-alepo-airspan-for-somaliland-lte-launch/>.
- 429 "New Somali Operator Somnet Launches 4G in Mogadishu," CommsUpdate (TeleGeography, Washington, DC, March 21, 2017), <https://www.commsupdate.com/articles/2017/03/21/new-somali-operator-somnet-launches-4g-in-mogadishu/>.
- 430 See "New Somali Operator Somnet Launches 4G in Mogadishu," CommsUpdate (TeleGeography, Washington, DC, March 21, 2017), <https://www.commsupdate.com/articles/2017/03/21/new-somali-operator-somnet-launches-4g-in-mogadishu/>.
- 431 "Hormuud Embarks on Nationwide 4G Rollout," CommsUpdate (TeleGeography, Washington, DC, July 12, 2021), <https://www.commsupdate.com/articles/2021/07/12/hormuud-embarks-on-nationwide-4g-rollout/>.
- 432 See Dalkom Somalia > About Us (2021), <http://dalkomsomalia.com/about.php>.
- 433 "Liquid Telecom Unveils Somalia's First International Fibre Link," CommsUpdate (TeleGeography, Washington, DC, November 13, 2013), <https://www.commsupdate.com/articles/2013/11/13/liquid-telecom-unveils-somalias-first-international-fibre-link/>.
- 434 "SomCable Rolls Out IP over DWDM Network," BizTech Africa (August 14, 2012), <https://www.biztechafrica.com/article/somcable-rolls-out-ip-over-dwdm-network/3846/>.
- 435 See "Cable Compendium: A Guide to the Week's Submarine and Terrestrial Developments," CommsUpdate (TeleGeography, Washington, DC, April 1, 2021), <https://www.commsupdate.com/articles/2021/04/01/cable-compendium-a-guide-to-the-weeks-submarine-and-terrestrial-developments/>.
- 436 See Hiraal Institute, *Doing Business in a War Zone: Somali Banks and Telecoms Providers* (Hiraal Institute, April 2019), 3, <https://hiraalinstitute.org/wp-content/uploads/2019/04/English-PDF-final.pdf> ("Hormuud . . . claims to have 75% market share in south and central Somalia . . . [while] other telecoms companies accuse it of having an even larger share and using its local influence to its advantage"). See also Jos Meester, Ana Uzelac, and Claire Elder, *Transnational Capital in Somalia: Blue Desert Strategy*, CRA Report (Clingendael Netherlands Institute of International Relations, Wassenaar, Netherlands, June 2019), 57, box 7, <https://www.clingendael.org/sites/default/files/2020-02/transnational-capital-in-somalia.pdf>. Also relevant here is a videoconference interview between Rory Macmillan and the then Director-General of the Somali National Communications Authority, Abdi Sheikh (April 29, 2019).
- 437 International Telecommunication Union (ITU), *Measuring the Information Society Report, Volume 2* (ITU, Geneva, 2018), 166, <https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2018/MISR-2018-Vol-2-E.pdf>.
- 438 World Bank and Altai, *Mobile Money in Somalia: Household Survey and Market Analysis* (World Bank and Altai, Washington, DC, 2017), <https://www.calpnetwork.org/publication/mobile-money-in-somalia-household-survey-and-market-analysis/>.
- 439 See Puntland Law No. 15 of 2007 on Communications and Fees (December 17, 2007).
- 440 "Puntland Parliament Approves Telecommunications Act," Somali Dispatch (November 14, 2020), <https://www.somalidispatch.com/latest-news/puntland-parliament-approves-telecommunications-act/>.
- 441 See Somaliland Law No. 50/2011 & Decree No. 0164/072011 (July 5, 2011), http://www.somalilandlaw.com/Xeerka_lsgaadhsiinta__DM.pdf.

Apart from avoiding any artificial legal barriers to entry, the absence of a legal framework and functioning government were detrimental to the sector in terms of interconnection and competition. The lack of domestic interconnection arrangements stemmed from the absence of any legal duty to interconnect until 2017. The fact that interconnection has remained difficult to achieve even after the law was passed points to HTG's ability to exploit its dominant position, especially in mobile money, to avoid an obligation to interconnect. In turn, the refusal to interconnect has further contributed to the growing disparity in market shares among operators, particularly where traffic is carried over the public switched telephone network rather than the internet.⁴⁴² It also forced consumers to acquire multiple devices or subscriber identity modules (SIMs) to enable them to communicate with customers on other networks than their primary network and to use mobile money transfer.⁴⁴³ In the absence of a duty to interconnect, most operators in Somalia had initially deployed largely autonomous, standalone networks that did not interconnect to exchange domestic traffic.⁴⁴⁴

To address this issue, both the United Nations Development Programme and the International Telecommunication Union (ITU) encouraged Somali operators to form the Somali Telecom Association in 1998.⁴⁴⁵ Cooperation was slow in yielding results but eventually led Somalia's three largest operators, Hormuud, NationLink, and Somtel, with support from the World Bank, to reach a notional agreement on national interconnection arrangements in 2014.⁴⁴⁶ By this time, HTG already served the vast majority of subscribers and the arrangement did not include smaller rivals. In addition, the voluntary interconnection arrangements quickly fell apart in the absence of independent and credible regulation.⁴⁴⁷

The absence of a functional government also left Somalia's mobile operators without legal obligation to pay taxes or regulatory or spectrum fees. In 2014, operators started making "voluntary contributions" to the Treasury, but the levels of the fiscal contributions were low by international benchmarks.⁴⁴⁸ Although the absence of a tax may have freed up more money for reinvestment and dividends and helped drive prices lower, it also established reliance on an unsustainable fiscal bargain.

The international community, especially the World Bank Group and the ITU, continued to support the Somali government in efforts to gain control over its telecom sector over the years, in particular supporting the passage of the new law in 2017, the establishment of the sector regulator, the National Communications Authority (NCA) in 2018, and the adoption of an information and communications technology (ICT) sector strategy in 2019.

In 2011 and 2014, the recognized national government in office undertook to establish policy and regulation without a new legal framework, although the initial efforts failed. In early 2011, the TFG's Ministry of Information, Posts and Telecommunications⁴⁴⁹ said that the government had drafted rules for managing spectrum, phone numbers, and interconnection and that the Finance Ministry was finalizing details of a telecom tax to be introduced.⁴⁵⁰ In mid-2013, under the newer government, the Minister of Information, Posts and Telecommunication held discussions in Dubai with Somalia's network operators, facilitated by the ITU and the World Bank, on a proposed telecom bill.⁴⁵¹ A few months later, the same government announced that it was seeking to find a private partner to form a joint venture to invest USD 100 million in the rollout of a national network.⁴⁵²

442 See Rachel Firestone, Tim Kelly, and Axel Rifon, "Supporting the ICT Sector in Somalia," Digital Development Blog (World Bank, Washington, DC, July 23, 2015), <https://blogs.worldbank.org/digital-development/supporting-ict-sector-somalia>.

443 "Minister for Post, Telecom and Technology Opens Mogadishu Tech Summit," Hiiraan Online (October 23, 2018), https://www.hiiraan.com/news4/2018/Oct/160781/minister_for_post_telecom_and_technology_opens_mogadishu_tech_summit.aspx.

444 Robert L. Feldman, "Somalia: Amidst the Rubble, a Vibrant Telecommunications Infrastructure," *Review of African Political Economy* 34, no. 113 (2007): 565–72, https://community.apan.org/cfs-file/_key/docpreview-s/00-00-00-06-64/2007_2D00_09_2D00_01-Somalia-Amidst-the-Rubble_2D00_a-Vibrant-Telecommunications-Infrastructure-_2800_Feldman_2900_.pdf.

445 See Tatiana Nenova and Tim Harford, "Anarchy and Invention: How Does Somalia's Private Sector Cope without Government?" Viewpoint (World Bank, Washington, DC, November 2004), 2, <https://documents1.worldbank.org/curated/en/774771468781541848/pdf/310270PAPER0VP2801nenova-1harford.pdf>.

446 See "Hormuud, Somtel, Nationlink Sign Interconnection Deal," CommsUpdate (TeleGeography, Washington, DC, July 23, 2014), <https://www.commsupdate.com/articles/2014/07/23/hormuud-somtel-nationlink-sign-interconnection-deal/>.

447 See Rachel Firestone, Tim Kelly, and Axel Rifon, "Supporting the ICT Sector in Somalia" Digital Development Blog (World Bank, July 23, 2015), <https://blogs.worldbank.org/digital-development/supporting-ict-sector-somalia>.

448 See Jos Meester, Ana Uzelac, and Claire Elder, *Transnational Capital in Somalia: Blue Desert Strategy*, CRA Report (Clingendael Netherlands Institute of International Relations, Wassenaar, Netherlands, June 2019), 57, box 7, <https://www.clingendael.org/sites/default/files/2020-02/transnational-capital-in-somalia.pdf>. "Somali Government Eyes \$100m Annually from Telcos with New Law," Goobjoog News (August 12, 2017), <https://goobjoog.com/english/somali-government-eyes-100m-annually-from-telcos-with-new-law/>.

449 The name of the ministry has changed several times, with the Ministry of Information being separated and the remaining part becoming the Ministry of Posts and Telecommunications, then the Ministry of Posts, Telecommunications and Technology, and later the Ministry of Communications and Technology.

450 "Somalia Hopes to End Telecoms Sector Anarchy," CommsUpdate (TeleGeography, Washington, DC, January 17, 2011), <https://www.commsupdate.com/articles/2011/01/17/somalia-hopes-to-end-telecoms-sector-anarchy/>.

451 "Somalia Moves to Regulate Anarchic Telecoms Sector," CommsUpdate (TeleGeography, Washington, DC, July 3, 2013), <https://www.commsupdate.com/articles/2013/07/03/somalia-moves-to-regulate-anarchic-telecoms-sector/>.

452 "Somali Government Seeks Private Investor," CommsUpdate (TeleGeography, Washington, DC, September 13, 2013), <https://www.commsupdate.com/articles/2013/09/13/somali-government-seeks-private-investor/>.

In mid-2014, a company called SomCom Telecom announced that it was seeking investment of USD 100 million and claimed to hold a national spectrum license issued by the Ministry of Posts and Telecommunications with an initial 15-year term, a renewal option, and no rollout or service obligations. SomCom claimed that it had spectrum assignments for 2×20 megahertz (MHz) in the 900 MHz band, 2×40 MHz in the 1800 MHz band, 2×60 MHz in the 2100 MHz band, and 2×20 MHz in the 2600 MHz band.⁴⁵³

The process accelerated after the 2017 elections. In August 2017, Somalia's Parliament passed the National Communications Act, which was signed by the president on October 2, 2017. The law provided for establishment of an independent sector regulator, the NCA, and sought to protect the rights of operators and consumers, address cybercrime, and encourage more private sector participation in developing the telecom market.⁴⁵⁴ Under the new act, Somalia appointed the first director-general of the NCA in January 2018.⁴⁵⁵ A key objective of enacting Somalia's National Communications Act 2017 was to maintain open market entry⁴⁵⁶ while establishing a more level playing field, fostering greater cooperation among rival operators in matters such as interconnection and infrastructure sharing, and prohibiting anticompetitive behavior.

In April 2019, Somalia's Ministry of Posts, Telecommunications and Technology began public consultations on a draft National ICT Policy and Strategy prepared with support from the ITU and the World Bank.⁴⁵⁷ In October 2019, the NCA began public consultations on the country's first telecom licensing regime, with the intention of establishing a unified licensing framework.⁴⁵⁸ In December 2019, the Cabinet approved the new National ICT Policy and Strategy, which covered the period from 2019 through 2024.⁴⁵⁹ The NCA introduced the new licensing framework in February 2020, which permitted unlicensed incumbents to apply for grandfathered licenses by April 1, 2020.⁴⁶⁰ The deadline for unlicensed operators to apply for a new license was August 31, 2021, although not all did so.⁴⁶¹ The Communications Act provides for the industry to be formally represented on the new sector regulator's board,⁴⁶² and this has resulted in a perception that HTG is able to influence regulatory decisions.

The affinity between money transfers and telecommunications persisted. A 2016 survey found that 83 percent of mobile phone owners in Somalia also subscribed to a mobile money service.⁴⁶³ This connection between telecommunications and financial services has also been preserved by the new government. In March 2021, the Central Bank of Somalia awarded the country's first mobile money license to Hormuud Telecom.⁴⁶⁴

453 "New Somali Licensee SomCom Seeking Investment," CommsUpdate (TeleGeography, Washington, DC, June 27, 2014), <https://www.commsupdate.com/articles/2014/06/27/new-somali-licensee-somcom-seeking-investment/>.

454 "Somalia Enacts New Telecoms Law," CommsUpdate (TeleGeography, Washington, DC, October 4, 2017), <https://www.commsupdate.com/articles/2017/10/04/somalia-enacts-new-telecoms-law/>.

455 "Somalia Appoints Head of Country's First Telecoms Regulator," CommsUpdate (TeleGeography, Washington, DC, February 20, 2018), <https://www.commsupdate.com/articles/2018/02/20/somalia-appoints-head-of-countrys-first-telecoms-regulator/>.

456 Somalia National Communications Law, 2017, Art. 2(f).

457 "Somalia Consults on Draft ICT Policy," CommsUpdate (TeleGeography, Washington, DC, April 23, 2019), <https://www.commsupdate.com/articles/2019/04/23/somalia-consults-on-draft-ict-policy/>.

458 "Somalia Consults on Licensing Framework for ICT Sector," CommsUpdate (TeleGeography, Washington, DC, October 22, 2019), <https://www.commsupdate.com/articles/2019/10/22/somalia-consults-on-licensing-framework-for-ict-sector/>.

459 "Somali Cabinet Approves National ICT Policy and Strategy," CommsUpdate (TeleGeography, Washington, DC, December 3, 2019), <https://www.commsupdate.com/articles/2019/12/03/somali-cabinet-approves-national-ict-policy-and-strategy/>.

460 "Somalia Introduces Licensing Framework for ICT Sector," CommsUpdate (TeleGeography, Washington, DC, February 19, 2020), <https://www.commsupdate.com/articles/2020/02/19/somalia-introduces-licensing-framework-for-ict-sector/>.

461 "Somali Service Providers Urged to Apply for Licences by 31 August," CommsUpdate (TeleGeography, Washington, DC, August 3, 2021), <https://www.commsupdate.com/articles/2021/08/03/somali-service-providers-urged-to-apply-for-licences-by-31-august/>.

462 Somali National Communications Act, Art. 10.

463 Altai Consulting, "Mobile Money in Somalia: Household Survey and Market Analysis" (World Bank, Washington, DC, April 2017), https://www.mfw4a.org/sites/default/files/resources/Mobile_Money_in_Somalia_-_WBank.pdf.

464 "Hormuud Telecom Awarded Somalia's First Mobile Money Licence," CommsUpdate (TeleGeography, Washington, DC, March 1, 2021), <https://www.commsupdate.com/articles/2021/03/01/hormuud-telecom-awarded-somalias-first-mobile-money-licence/>.

5.2 Assessment of internal Somali telecom investment climate factors

Five internal factors during 2020–20 that impacted the climate for mobile market investment in Somalia were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

Somalia: Market open to entry?

Somalia's mobile market (outside Somaliland and Puntland) had no legal barriers to entry in the absence of regulation from the fall of the government in 1991 through 2017. Adoption of the National Communications Act in 2017 initiated the transition of the national market from being completely unregulated to having an open licensing regime and that process is now well underway.

Somaliland and Puntland also initially lacked any formal legal framework, but Puntland established an open licensing framework in 2007 and Somaliland established one in 2011.

Somalia was assigned a *favorable* score for its mobile market being open to entry, reflecting the combination of minimal legal barriers prior to the adoption of telecom laws and open licensing thereafter.

Somalia: Ease of private investment?

For most of 2000–20, Somalia had no formal investment framework for the sector. Investors faced regular destruction of telecom infrastructure. Constructing a telecom network required informal agreements with a variety of stakeholders, including armed groups and locally influential political or business interests. Lack of security has also contributed to the absence of a national fiber backbone network and delayed rollout of international connectivity infrastructure, which has resulted in relatively poor broadband access despite high mobile penetration.⁴⁶⁵ Notwithstanding these impediments, several locally backed operators with interests in the foreign remittance business were able to establish and develop successful mobile operations in the years following the 1991 fall of the Barre regime. However, Somalia has not been able to attract the more traditional regional operators that invested heavily in neighboring markets during the same period, and this has no doubt limited competition and market performance.

465 Albany Associates, Strategy and PPP Options for Supporting the ICT Sector and Broadband Connectivity in Somalia (World Bank, Washington, DC, January 2017), 11, figure 2, <https://ppiaf.org/documents/5419/download?otp=b3RwIzE2MzY1OTUwMzQ=>.

466 See <https://www.commsupdate.com/articles/2022/02/21/somaliland-operators-sign-interconnection-agreement/>.

467 Federal Republic of Somalia National ICT Policy & Strategy: 2019-2024 34, <https://mptt.gov.so/en/wp-content/uploads/2019/11/National-ICT-Policy-Strategy-2019-2024.pdf#:~:text=As%20the%20first%20National%20ICT%20Policy%20and%20Strategy%2C,and%20objectives%20to%20be%20achieved%20by%20all%20stakeholders.>

468 Somalia National Communications Act, art. 58(1).

469 Videoconference Interview by Rory Macmillan with Hormuud Management Team (August 8, 2019).

470 Videoconference Interview by Rory Macmillan with the then Director-General of the Somali National Communications Authority, Abdi Sheikh (April 29, 2019).

More accurately, HTG has successfully blocked the entry of foreign investors. The locally backed operators have not interconnected their networks, beyond the HTG affiliates, although in February 2022 Telesom and Somtel announced that they had reached an agreement on interconnection in Somaliland.⁴⁶⁶

The officially recognized Somali government has since 2017 begun adopting reforms to attract competitive private investment in the telecom sector and has adopted a policy in favor of linking government policies with incentives for private investment.⁴⁶⁷

The 2017 National Communications Act, while protecting the rights of national communication companies and national investors,⁴⁶⁸ establishes a framework that protects all investors with greater legal and regulatory certainty.

Somalia was assigned an *uncertain* rating for ease of private investment in mobile markets, reflecting the absence of a stable legal and regulatory framework for most of the conflict period, while also recognizing the substantial private investment that has been attracted.

Somalia: Spectrum needs met?

Somalia's wireless operators, both mobile and fixed, have had their spectrum needs largely satisfied throughout the conflict period, although some spectrum assignments were not necessarily efficient. Mobile operators have generally been able to self-resolve minor interference issues that arise from time to time.⁴⁶⁹

Since 2018, the new national regulator has issued some spectrum assignments that reportedly conflict with those previously made by sector regulators in Somaliland and Puntland, but the operators and regulator appear to be working to resolve these issues. The new regulator does not yet have the equipment or ability to monitor spectrum use and interference.

Somalia's mobile operators currently pay negotiated fees for their spectrum. A study carried out by WRAP International, funded by the World Bank ICT Sector Support Program, suggested a guideline of about USD 50,000 per year per MHz of spectrum in the mobile bands. This benchmark has been broadly followed in the negotiations over spectrum fees.⁴⁷⁰

For these reasons, Somalia was assigned a *favorable* rating on spectrum needs being met.

Somalia: Level playing field?

Somalia lacked any pro-competitive framework during most of 2000–20. In the early years of this period, no operator had sufficient market power to suppress the efforts of its rivals. Combined with the absence of any artificial legal or regulatory constraints on competition, this resulted in a relatively level playing field.

HTG appears to have captured an early market lead through greater efficiency, market knowledge, and good service. However, the absence of interconnection arrangements between domestic operators and the refusal of HTG and others to interconnect leveraged the demand-side network effect to make service offerings by operators with more customers also more attractive to consumers, causing market imbalance to grow over time. Smaller operators have no bargaining power under such circumstances to persuade larger operators to interconnect, and as the gap in market shares grows, smaller operators have been driven out of the market or marginalized to niche markets. Passage of the National Communications Act in 2017 and establishment of the NCA in 2018 had not yet leveled the playing field on interconnection by the end of 2020.

Somalia was rated as *unfavorable* on having a level playing field in its mobile market during 2000–20, reflecting the combined impact of years without interconnection and the resulting emergence of an imbalanced market and HTG market dominance.

Somalia: Fiscal reasonableness?

During 2000–20, mobile operators in Somalia were not subject to any effective official taxation and, until 2018, were also not required to pay spectrum or regulatory fees (other than fees they voluntarily agreed to pay since 2015 to support the establishment of a national regulator). The telecom sector has not contributed a fair and balanced amount to public finances. A 2015 World Bank study found that under a peaceful and fair fiscal framework, the telecom sector would have contributed between USD 81 million

and USD 119 million per year to the public coffers, whereas Somalia's telecom operators made voluntary contributions of only USD 4.8 million per year to the official public purse in that year.⁴⁷¹

In 2017, the Somali federal government began trying to enforce preexisting tax laws from the 1960s, providing for a progressive corporate income tax with rates up to 30 percent and a 15 percent sales tax on telecommunications services.⁴⁷² The World Bank noted that implementation of the new telecom regulatory framework should permit formal taxation of Somalia's telecom sector,⁴⁷³ but this did not occur before the end of 2020. The International Monetary Fund (IMF) noted in 2020 that although the telecom regulatory framework that is necessary for effective fiscal regulation of the sector was still not in place, nevertheless the level of negotiated "voluntary" contributions had risen to a sufficient level to allow the country to meet its international commitments.⁴⁷⁴ In August 2021, the NCA was still calling for operators to apply for licenses, pay license fees, and demonstrate tax compliance.⁴⁷⁵ Despite laws in place and international reports of progress on improving tax receipts, the actual amounts collected by the government from the telecom sector were relatively low, including due to allegations of corruption.⁴⁷⁶

Somalia's operators have long paid unofficial "protection money" to local militias and other official or non-state sources of control and authority, to stay in business (as detailed below). Although not embedded in a law, these payments have been compelled by threats of force and equated to buying "protection." Al-Shabaab has reportedly extorted Somali telecom companies into paying support and has bombed or otherwise closed telecom branches and cell sites when payments were not received.⁴⁷⁷ These unofficial payments have not been transparent and cannot be quantified, but they have reportedly been significant in cumulative value.

471 Peter Lange, Telecommunications Contribution to Public Finance in Somalia (World Bank, Washington, DC, January 30, 2015).

472 See Federal Government of Somalia Ministry of Planning, Investment & Economic Development's Sominvest webpage Taxation in Somalia, <http://sominvest.mop.gov.so/procedures/tax-regime/>. See also Somalia Appropriation Acts for the 2018 Budget, Act No. 000011, <https://mof.gov.so/sites/default/files/2018-10/Budget%20Appropriation%20Act%202018.pdf>.

473 See World Bank, Somalia Economic Update 8 (World Bank, Washington, DC, July 2017), <https://documents1.worldbank.org/curated/en/552691501679650925/pdf/117729-WP-P159934-PUBLIC-2-8-2017-15-34-47-SomaliaEconomicUpdateNoFINALJuly.pdf>.

474 See International Monetary Fund (IMF), Somalia Country Report No. 20/310 44-50 (IMF, Washington, DC, November 2020), <https://www.imf.org/en/Publications/CR/Issues/2020/11/30/Somalia-First-Review-Under-the-Extended-Credit-Facility-Press-Release-Staff-Report-and-49924>.

475 See Alan Burkitt-Gray, "Somalia Sets 31 August Deadline for Operators to Register, or Close Down" (Capacity Media, London, August 18, 2021), <https://www.capacitymedia.com/articles/3829386/somalia-sets-31-august-deadline-for-operators-to-register-or-close-down>.

476 See Jos Meester, Ana Uzelac, and Claire Elder, Transnational Capital in Somalia (Netherlands Institute of International Relations, Wassenaar, Netherlands, June 2019), 56–57, <https://www.clingendael.org/sites/default/files/2020-02/transnational-capital-in-somalia.pdf>.

477 See, for example, Center on Sanctions and Illicit Finance, Al-Shabaab Financial Assessment (Center on Sanctions and Illicit Finance, Washington, DC, June 2017), https://s3.us-east-2.amazonaws.com/defenddemocracy/uploads/documents/CSIF_TFBB_Al-Shabaab_v05_web.pdf. See also Action on Armed Violence, "Sources of Funding (Including Self-Funding) for the Major Groupings That Perpetrate IED Incidents – Al Shabaab" (Action on Armed Violence, London, May 25, 2017), <https://aoav.org.uk/2017/sources-funding-including-self-funding-major-groupings-perpetrate-ied-incidents-al-shabaab/>. Other groups have also extorted money from the telecom industry, including the Islamic State in Iraq and the Levant. See UN Security Council Expert Panel, Final Report S/2019/858 concerning Somalia (United Nations, New York, November 1, 2019), 84–85, https://www.securitycouncilreport.org/atf/cf/%7B65BF-CF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/S_2019_858_E.pdf.

According to Transparency International, Somalia is tied with South Sudan for the worst perceived corruption in the world.⁴⁷⁸ The fiscal treatment of operators in Somalia is not transparent and the regulator is unable to ensure universal services or a level playing field for all operators.

As summarized in table 14, based on the overall circumstances, Somalia was assigned a *favorable* score for fiscal reasonableness. Despite the nominal sector-specific sales tax on telecommunications services, the actual effective fiscal burden imposed on operators in Somalia has been low for almost the entire 2000–20 period. Lack of transparency and predictability has undermined sector investment, but this factor appears to be substantially outweighed by the low level of formal taxation and almost complete absence of regulation until the end of the period.

Table 14: Somalia: Fiscal reasonableness determination

SOMALIA: FISCAL REASONABLENESS, 2001–20			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
No effective taxation during period Nominal 30% corporate income tax introduced in 2017	Nominal 15% telecommunications sales tax; negotiated settlement with telecom companies retroactive to October 2017 No effective compulsory government taxes	None during most of the period Voluntary license and spectrum fees after 2017	Lack of transparency during most of the period Ad hoc payments to non-state actors

Somalia overall rating: **Favorable**

Source: World Bank.

Somalia: Summary of key findings across all the internal factors

Table 15 summarizes the internal investment climate factor assessments and sets out the key relevant facts leading to each score.

Table 15: Somalia: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Market open to entry	2	No legal barriers to entry As many as 10 unlicensed private mobile operators entered market
Ease of private investment	1	No licensing or investment framework during 2000–20 Institutional framework still weak after post-2017 reforms
Spectrum needs met	2	No sector restrictions on innovation or new technology Voluntary/negotiated licensing of spectrum by different authorities
Level playing field	0	Lack of interconnection gave rise to dominant operators No effective regulation of anticompetitive behavior Post-2017 reforms not effective by end of 2020
Fiscal reasonableness	2	Low overall tax burden including voluntary license and spectrum fees paid to internationally recognized government and unofficial taxes paid to Al-Shabaab and other militia groups
All	7	

Source: MacMillan Keck.

478 Somalia scored 12 points of a total possible 100, coming in at 179th of 179 countries, <https://www.transparency.org/en/cpi/2020/index/nzl>.

5.3 Assessment of external Somali telecom investment climate factors

Five external factors during 2000–20 that impacted the climate for telecom investment in Somalia were assessed: (1) military or paramilitary interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings across all the external factors.

Somalia: Military or paramilitary interference?

From 2006 through 2015, non-state militant groups operating within Somalia repeatedly interfered with the infrastructure and activities of mobile network operators, particularly in the central and southern regions of the country:

- After the ICU seized effective control over Mogadishu from the TFG in 2006, the unrecognized authority banned operators Hormuud, NationLink, and Telecom Somalia from using pick-up trucks mounted with artillery guns to protect their assets and required them to hand over their armored vehicles.⁴⁷⁹
- In July 2007, the mayor of Mogadishu ordered the closure of the Heliwa district branches of Hormuud Telecom and Telecom Somalia, accusing them of assisting insurgents battling the transitional government and Ethiopian troops based in Mogadishu. The mayor also claimed that Hormuud had harbored insurgents in its facilities and that Telecom Somalia had retained a large cache of arms in defiance of the December 2006 order to hand them over.⁴⁸⁰
- In June 2008, Hormuud's mobile network in Mogadishu lost service after Somali-Ethiopian forces destroyed Hormuud Telecom's headquarters building at the Bakara market.⁴⁸¹
- In October 2010, Al-Shabaab imposed a ban on all mobile money transfers, known as ZAAD, to take effect

at the end of the year, claiming that the service was a threat to Somalia's economy.⁴⁸²

- In October 2011, Al-Shabaab closed the offices in central and southern Somalia of NationLink and Telecom Somalia and money transfer agency Dahabshiil for their refusal to meet demands to pay around USD 130,000 to the militant group.⁴⁸³
- In early January 2014, Al-Shabaab banned internet access in the areas it controlled, threatening to attack operators that did not comply.⁴⁸⁴
- Two weeks later, notwithstanding the government's call for operators to resist the coercion, the operators complied after militants entered their buildings and forced them to shut down internet services in the central and southern regions of Somalia.⁴⁸⁵
- In February 2014, Al-Shabaab ordered the shutdown of Hormuud facilities in areas it controlled for failure to meet its financial demands.⁴⁸⁶
- In December 2014, Al-Shabaab shut down Hormuud's services in the Dinsoor and Ufurow districts of the Bay region, as Somali government forces aided by African Union peacekeepers pressed ahead with their military campaign in central and southern Somalia.⁴⁸⁷

The shipping lanes off the coast of Somalia have been impacted by multiple military blockades before and during the conflict, as well as by the activities of pirates. Although not directly targeted at telecom supplies, these standing embargoes have complicated shipments into Somalia. The UN Security Council had adopted an embargo on the shipment of arms to Somalia in January 1992.

The arms embargo was still in effect when the current conflict began in 2005 and remains in effect today, with certain exceptions passed in 2006 and 2007, to exempt the officially recognized government and limit the embargo to non-state actors.⁴⁸⁸ In 2010, the African Union requested UN support for an air and naval blockade of Somalia to cut off supplies to Al-Shabaab.⁴⁸⁹ The UN Security Council declined to act on this request, limiting its intervention to the standing arms and anti-piracy embargoes.⁴⁹⁰

479 "Telcos Hand Their Weapons to Islamists," CommsUpdate (TeleGeography, Washington, DC, December 11, 2006), <https://www.commsupdate.com/articles/2006/12/11/telcos-hand-their-weapons-to-islamists/>.

480 "Mogadishu Mayor Orders Telcos' Branches Shut," CommsUpdate (TeleGeography, Washington, DC, July 9, 2007), <https://www.commsupdate.com/articles/2007/07/09/mogadishu-mayor-orders-telcos-branches-shut/>.

481 "Hormuud Telecom Network out of Action," CommsUpdate (TeleGeography, Washington, DC, June 9, 2008), <https://www.commsupdate.com/articles/2008/06/09/hormuud-telecom-network-out-of-action/>.

482 "Mobile Money Transfer Banned in Somalia," CommsUpdate (TeleGeography, Washington, DC, October 19, 2010), <https://www.commsupdate.com/articles/2010/10/19/mobile-money-transfer-banned-in-somalia/>.

483 "Operations of Nationlink, Telcom Somalia Suspended, Report Says," CommsUpdate (TeleGeography, Washington, DC, October 3, 2011), <https://www.commsupdate.com/articles/2011/10/03/operations-of-nationlink-telcom-somalia-suspended-report-says/>.

484 See "Somali Govt Condemns Al Shabaab Internet Ban," CommsUpdate (TeleGeography, Washington, DC, January 13, 2014), <https://www.commsupdate.com/articles/2014/01/13/somali-govt-condemns-al-shabaab-internet-ban/>.

485 "Internet Cut in Al Shabaab-Controlled Areas, Report Says," CommsUpdate (TeleGeography, Washington, DC, January 27, 2014), <https://www.commsupdate.com/articles/2014/01/27/internet-cut-in-al-shabaab-controlled-areas-report-says/>.

486 "Hormuud Telecom Services Disrupted by Militant Group," CommsUpdate (TeleGeography, Washington, DC, February 4, 2014), <https://www.commsupdate.com/articles/2014/02/04/hormuud-telecom-services-disrupted-by-militant-group/>.

487 "Hormuud Services Disrupted in Bay Region," CommsUpdate (TeleGeography, Washington, DC, December 9, 2014), <https://www.commsupdate.com/articles/2014/12/09/hormuud-services-disrupted-in-bay-region/>.

488 See Stockholm International Peace Research Institute, UN Arms Embargo on Somalia (updated December 20, 2019), https://www.sipri.org/databases/embargoes/un_arms_embargoes/somalia.

489 Zachary Fillingham, "AU Seeking Naval Blockade for Somalia," Geopolitical Monitor (October 21, 2010), <https://www.geopoliticalmonitor.com/analysis-au-seeking-naval-blockade-for-somalia-4195/>.

490 See UN Security Council Resolution S/Res/1964 (United Nations, New York, December 22, 2010), [https://undocs.org/S/RES/1964\(2010\)](https://undocs.org/S/RES/1964(2010)).

Piracy has also adversely impacted imports to Somalia. Commercial ships have often faced difficulty reaching Somalia due to piracy off its coast.⁴⁹¹ In 2008, following numerous incidents by Somali pirates operating in the shipping lanes leading to and from the Suez Canal, shippers from around the globe requested a blockade to protect cargo vessels. The UN Security Council issued four resolutions (1816, 1838, 1846, and 1851) in 2008 to facilitate an international response to piracy off the Horn of Africa. Resolution 1851 authorized international naval forces to carry out anti-piracy operations in Somali territorial waters and ashore, with the consent of Somalia's TFG. Resolution 1872, adopted on May 26, 2009, authorized UN member states to participate in training and equipping the TFG security forces in accordance with Resolution 1772 (2007). In January 2009, the multilateral Contact Group on Piracy off the Coast of Somalia was established to coordinate anti-piracy efforts. US, North Atlantic Treaty Organization, and EU regional and other naval forces began patrolling near Somalia in coordination with a US-led task force.⁴⁹²

The anti-piracy blockades continue today, with the UN most recently renewing its authorizing resolution in December 2020.⁴⁹³ The laying of the branch of the East Africa Submarine System submarine cable into Mogadishu, in 2013, could only be carried out with support from the French navy and under circumstances of extreme secrecy. Based on these circumstances, Somalia was assigned an *uncertain* score on military interference.

Somalia: International sanctions?

In tandem with arms and anti-piracy embargoes, Somalia has been subject to a series of international sanctions by the UN, the European Union, and the United States. The most noteworthy sanctions, in terms of impact on the telecom sector, were the actions led by the United States, its allies, and the UN, which shut down Barakaat worldwide in 2001, caused significant disruption to Somalia's remittances and telecommunications markets, and later brought Hormuud under periodic scrutiny but was ultimately discredited as ill-founded. Still, the resiliency of Somalia's telecom sector enabled the resumption of services within two months and

the return of full throttle activity within a year, a relatively small part of the 21-year period studied.

In 2019, the UN imposed a broad ban on the export of components of improvised explosive devices into Somalia. Within this scope, exports of power sources and switches were also banned, which may have adversely impacted the development of the telecom sector due to their widespread use in telecom equipment.⁴⁹⁴ Similarly, both the European Union and the UN imposed a ban on exporting technology and technical advice to Somalia that might be used in military activities or in relation to the banned components. The US executive orders primarily provided for targeted sanctions on certain designated individuals and entities.⁴⁹⁵ However, the multiple networks built by rival operators during the 21-year period and the relatively early introduction of technology upgrades such as 3G and 4G suggest that the combined impact of international sanctions on Somalia's telecom sector, other than the Barakaat closure, was insufficient to stop investment and development.

Somalia was assigned an *uncertain* rating on international sanctions, reflecting the balance of the sanctions that were adopted with the level of investment that occurred.

Somalia: Travel restrictions?

After the 1991 civil war, Somalia (excluding Somaliland) became a "no-go" area for major world air carriers.⁴⁹⁶ Somali Airlines, the country's national air carrier, also ceased operations in 1991. A few entrepreneurial regional carriers sprang up to fill the gap. Daallo Airlines began operations in 1991 using a single wet-leased Cessna Caravan operating from Djibouti to Hargeisa, Somaliland, after the demise of Somali Airlines following the civil war in Somalia. It eventually expanded to destinations in the Middle East, Europe, and other points in Central and East Africa.⁴⁹⁷ Jubba Airways also began offering service within Somalia and the region.⁴⁹⁸ Kenya-based African Express started serving Mogadishu. In 2012, Turkish Airlines reentered the market, offering the first regularly scheduled transcontinental flights serving Mogadishu since 1991 (to Istanbul with connecting flights to onward destinations).⁴⁹⁹

491 David Axe, "10 Things You Didn't Know about Somali Pirates," Wall Street Journal (October 5, 2020), www.wsj.com/articles/10-things-you-didn-t-know-about-somali-pirates-11601915298.

492 See Congressional Research Service Report for Congress, "Piracy off the Horn of Africa," reprinted in Naval History and Heritage Command (2009), <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/p/piracy-off-horn-africa-crs.html>.

493 UN Security Council Resolution 2554 (United Nations, New York, 2020).

494 UN Security Council Resolution 2498 (United Nations, New York, 2019).

495 United States, Executive Office of the President Barack Obama, "Executive Order 13536: Blocking Property of Certain Persons Contributing to the Conflict in Somalia" (US Executive Office of the President, Washington, DC, April 12, 2010), <https://www.federalregister.gov/documents/2010/04/15/2010-8878/blocking-property-of-certain-persons-contributing-to-the-conflict-in-somalia>. United States, Executive Office of the President Barack Obama, "Executive Order 13620: Taking Additional Steps to Address the National Emergency with Respect to Somalia" (US Executive Office of the President, Washington, DC, July 20, 2012), <https://www.hsdl.org/?abstract&did=717902>.

496 See Sulaiman Momodu, "Somalia Rising from the Ashes," Africa Renewal (United Nations, April 2016), <https://www.un.org/africarenewal/magazine/april-2016/somalia-rising-ashes>.

497 Daallo > About > Company Profile (2021), <https://www.daallo.com/About.aspx>.

498 See Edmund Blair, "Regional Airlines Merge as Somali Airspace Draws Competition," Reuters (February 17, 2015), <https://www.reuters.com/article/somalia-airlines/regional-airlines-merge-as-somali-airspace-draws-competition-idUSL5N0VN2ZF20150217>.

499 David Smith, "Turkish Airlines Starts Commercial Flights to Somalia," The Guardian (March 6, 2012), <https://www.theguardian.com/world/2012/mar/06/turkish-airlines-flights-somalia-mogadishu>.

Thereafter, Ethiopian Airlines and Fly Dubai also began serving Hargeisa in Somaliland.⁵⁰⁰

Travel to Somalia has remained perilous. On February 2, 2016, a suicide bomb went off on Daallo Airlines Flight 159, which was headed from Mogadishu to Djibouti City, about 20 minutes after it took off. The bomb killed the bomber, but the aircraft was able to return to the airport safely. Al-Shabaab later claimed responsibility for the bombing. Somalia was not subject to any broad-based travel bans during 2000–20. Somalia has faced periodic bans on travel from certain countries, such as a brief ban on US travel to Somalia during the Trump administration.

This factor was assigned an *uncertain* rating on travel restrictions, primarily reflecting the lack of intercontinental scheduled flights from 2000 through 2012 and intermittent travel bans throughout the remainder of 2000–20.

Somalia: International aid for telecommunications?

Somalia was largely cut off from participation in the international community from 1991 through 2013/2014. The World Bank Group resumed relations with Somalia in 2013.

Somalia received significant humanitarian aid from international organizations, bilateral donors, and nongovernmental organizations since 2014, notably from the State and Peacebuilding Fund and the Somalia Multi-partner Fund.⁵⁰¹ Somalia has also received significant telecom-related technical assistance with support from the ITU, United Nations Development Business, World Bank, and United States Agency for International Development. However, no significant international aid was targeted for telecom or other infrastructure investment for most of the duration of the current conflict, until 2014 when the World Bank's ICT sector Support for Somalia program began (P152358). Promised African Development Bank assistance never materialized. A key reason for the lack of financial investment was that Somalia had since 1991 existed outside the international financial system. It had been

disqualified by the international community as a recipient of certain types of international financial assistance due to its default on outstanding facilities and commitments to various sovereign creditors and international agencies. In March 2020, the IMF and the World Bank reached the Decision Point of the Heavily Indebted Poor Countries initiative for Somalia, putting the country on a pathway for the restoration of regular concessional financing and launching the process toward debt relief.⁵⁰² Somalia cleared its arrears to the African Development Bank, the IMF, and the World Bank, and reduced its external debt to USD 3.9 billion. About a week later, the Paris Club of sovereign creditors followed suit, enabling the country to reduce its sovereign debt from USD 5.2 billion at end of 2018 to USD 557 million by early 2023.⁵⁰³

With these actions, Somalia fully reestablished its access to new resources from the World Bank, the African Development Bank, and other donor organizations.⁵⁰⁴ To receive irrevocable debt relief at the end of three years, Somalia must maintain sound macroeconomic policies, implement its poverty reduction strategy for at least one year, and complete a set of policy measures known as Completion Point triggers that are intended to promote inclusive growth and poverty reduction.

The World Bank technical assistance to Somalia in support of implementation of communication sector reforms ran from 2014 to 2020, and the passage of the 2017 Communications Act and the greatly increased financial contribution by operators to the Treasury were among the highlights of this program. Some support continues under the Sustainable Communities Accessing Lending and Expertise Upon Performance lending program (P168115), which has a particular focus on digital ID and financial services.

Somalia was assigned an *uncertain* rating for international aid for telecommunications, balancing the significant technical assistance received in support of its telecom sector with the lack of international telecom investment aid availability until early 2020, and the lack of technical assistance before 2014.

500 See Edmund Blair, "Regional Airlines Merge as Somali Airspace Draws Competition," Reuters (February 17, 2015), <https://www.reuters.com/article/somalia-airlines/regional-airlines-merge-as-somali-airspace-draws-competition-idUSL5N0VNZF20150217>.

501 The UN Peacebuilding Fund had invested USD 46 million in Somalia by 2019. See "UN Peacebuilding Fund at a Glance" (January 19, 2020), <https://somalia.un.org/en/31539-un-peacebuilding-fund>. The Multi-partner Fund for Somalia had expended more than USD 322 million as of December 31, 2020. See Consolidated Annual Financial Report of the Administrative Agent for the Somalia Multi Window Trust Fund for the period 1 January to 31 December 2021 (United Nations Development Programme, New York, May 2021), 17, <https://mpff.undp.org/factsheet/fund/4S000>.

502 See Andrea Shalal, "IMF, World Bank Clear Somalia for Debt Relief, Normal Ties to World," Reuters (March 25, 2020), <https://www.reuters.com/article/us-somalia-debt/imf-world-bank-clear-somalia-for-debt-relief-normal-ties-to-world-idUSKBN21D05Q>.

503 See "Paris Club Creditors Agree to Cancel \$1.4 Billion of Somali Debt," Reuters (March 31, 2020), <https://www.reuters.com/article/us-somalia-debt-paris-club/paris-club-creditors-agree-to-cancel-1-4-billion-of-somali-debt-idUSKBN21I3MO>.

504 See World Bank, "Somalia Clears Arrears to World Bank Group," Press Release (World Bank, Washington, DC, March 5, 2020), <https://www.worldbank.org/en/news/press-release/2020/03/05/somalia-clears-arrears-to-world-bank-group>.

Somalia: International security intervention?

The UN Security Council approved an African Union peacekeeping mission in Somalia in 2007,⁵⁰⁵ and the mandate was extended until the end of 2021.⁵⁰⁶ Various African Union member states have contributed forces to peacekeeping in Somalia for a number of years. Military advisers from the United States and other members of the international community have also provided support. However, the international community's security interventions in Somalia have had mixed results and have not eliminated security issues or violence.

As a result, Somalia was assigned an *uncertain* rating for international security intervention.

Somalia: Summary of key findings across all the external factors

Table 16 summarizes the scoring of external factors likely to have had an impact on the development of the telecom sector in Somalia and the key relevant facts that form the basis for each score.

Table 16: Somalia: Assessment of external factors impacting the telecom investment climate

External factor assessed	Score	Key relevant facts
Military interference	1	Interference with inbound shipments by pirates and militants International blockades of arms imports and pirates Al-Shabaab paramilitary activities
International sanctions	1	Broad United Nations and European Union bans on technology transfers and technical assistance
Travel restrictions	1	No restrictions on inbound travel Difficulties in reaching Somalia
International aid for telecommunications	1	Somalia only recently reentered the world financial system Technical assistance and financial support by the World Bank
International assistance in peacekeeping	1	African Union military support
All	5	

Source: MacMillan Keck.

505 UN Security Council resolution 1744 (United Nations, New York, 2007).

506 UN Security Council resolution 2568 (United Nations, New York, 2021).

5.4 Somalia's projected and actual teledensity evolution

The following passages discuss Somalia's teledensity evolution and the impact of the conflict.

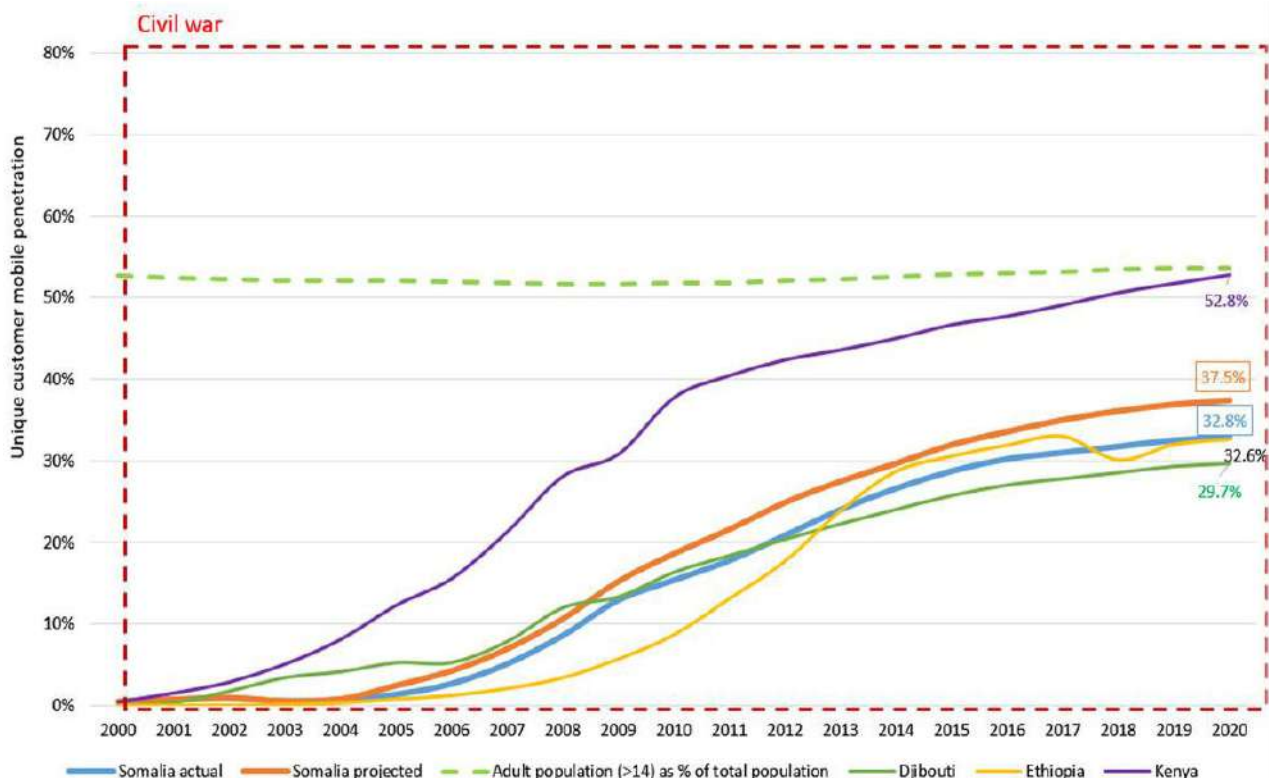
Somalia's unique subscriber mobile penetration

Somalia's mobile penetration was considered from 2000 through 2020. Mobile penetration in Djibouti, Ethiopia, and Kenya was considered as the benchmark. Somalia's adult-age (15+) population was considered as an invisible upper bound on potential unique customer mobile penetration.

Among the seven countries studied, Somalia presented a unique challenge in projecting mobile subscriber growth under the but-for-the-conflict scenario. At the inception of its civil war in 1991, Somalia had no mobile networks. All subsequent development of network infrastructure and subscriber adoption occurred during the conflict. The lack of any pre-conflict mobile subscriber evolution precluded making intra-conflict projections based on pre-conflict data. Thus, for Somalia, but-for-the-conflict growth rate projections were based entirely on other countries. This too was challenging because Kenya, with its relatively strong economy, presented a high-growth scenario; Djibouti, with its relatively weak economy, presented a low-growth scenario; and Ethiopia's state-owned monopoly did not offer a reliable benchmark for a competitive market. Subject to these caveats, the projected growth in the but-for-the-conflict scenario was modeled so as not to be overly aggressive or conservative but instead to represent a reasonable basis for what could have transpired absent the conflict. Considering Somalia's profile, the projection presents a reasonable but-for-the-conflict estimate of the potential penetration level that exceeds Ethiopia and Djibouti but is significantly less than in Kenya. The gap in Somalia's mobile penetration between the actual and but-for-the-conflict scenarios grew from zero at the resurgence of conflict in 2005 to 4.7 percentage points by 2020.

Somalia could have fared much worse during 2000–20, but it essentially remained open for investment during this period, with as many as 10 unlicensed mobile operators at one time. In 2009, the civil war escalated into a fierce battle for control of Mogadishu, and the impact is evidenced as a dip in subscriber growth from 2009. Violence escalated again in 2016 with the resurgence of Al-Shabaab, and this appears to explain the slowdown in subscriber growth starting in 2017. Figure 17 depicts the results.

Figure 17: Somalia's unique subscriber mobile penetration, 2000–20



Source: MacMillan Keck.

Somalia’s mobile teledensity was low before 2000. Mobile penetration continued to grow during 2000–20, but at a slower rate than the but-for-the-conflict projections (which indicate that Somalia would otherwise have caught up with the peer group of Ethiopia, Kenya, and Djibouti), and growth has slowed to a crawl since about 2017.

In the but-for-the-conflict scenario, Somalia’s mobile penetration (the orange curve in figure 17) is generally projected to have followed a similar growth pattern to the actual mobile penetration (the blue curve in figure 17) but at a faster rate, resulting in a widening gap over time. Djibouti’s mobile penetration overtook Somalia’s in 2010, but it would have remained below Somalia’s in the but-for-the-conflict scenario.

Unique subscriber penetration in 2020 was 32.8 percent against a total SIM penetration of 48.5 percent (based on ITU data, which are not depicted on figure 17), an almost 50 percent differential. This reflects the prevalence of customers with multiple SIMs due to the failed interconnection arrangements among Somalia’s operators. The actual growth profile shows an increased growth rate between 2011 and 2016, partially due to the fragmented nature of the market, as the overall SIM penetration tripled between 2011 and 2016, while unique subscriber penetration increased by only 55 percent over the same period.

Despite fragmentation and a lack of regulatory or fiscal certainty, Somalia’s actual growth trajectory exceeded the rates in Djibouti over the conflict period and is similar to Ethiopia’s although less erratic. Kenya shows greater growth, due to a more robust, competitive market and the presence of 4G services over the last five years.

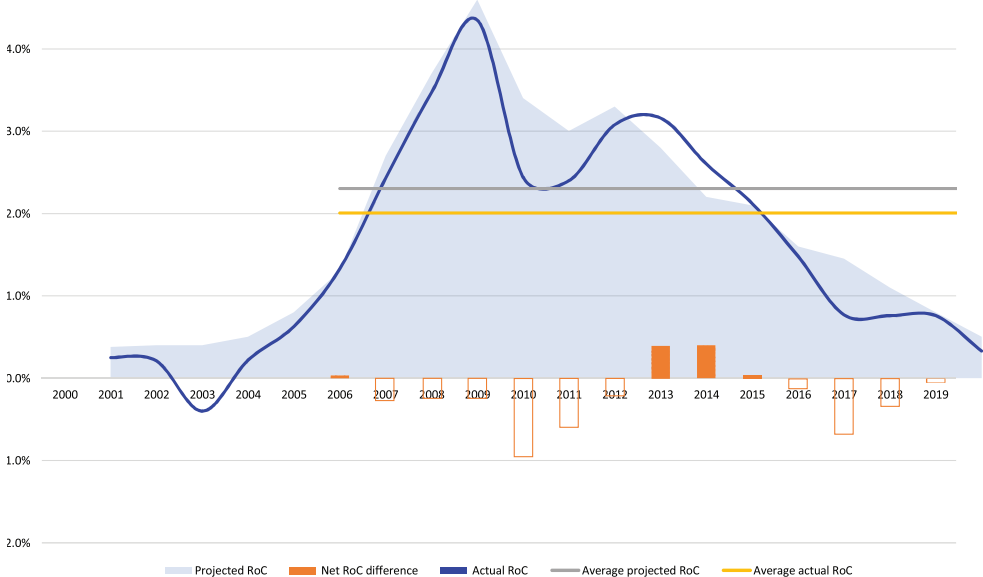
Somnet introduced 4G services in Mogadishu in March 2017 without a license, after 3G had been introduced by Hormuud in 2012, despite enforced closure in parts of the country by Al-Shabaab. In July 2014, Hormuud, Nationlink, and Somtel signed an interconnection agreement that would have slowed SIM penetration growth (as revealed by ITU data) if it had lasted for more than a few months.

Despite market improvement, Somalia’s actual penetration of 32.8 percent remains well below the total adult population of 53 percent. This would indicate that although it is a functioning market, it is neither extensive nor efficient. Somalia’s peers show similar relationships between unique user mobile penetration and adult population (ages 15+), with Djibouti at 29.7 percent versus 71 percent, Ethiopia at 32.6 percent versus 60 percent, and Kenya at 52.8 percent versus 61 percent. The introduction of the National Communications Act in 2017 and the NCA in 2018 bode well for increased stability and growth in the mobile sector.

Somalia’s mobile penetration growth rate

Somalia’s mobile penetration growth rate (the year-on-year rate of change in penetration) is also considered over 2000–20. The results are depicted in figure 18.

Figure 18: Somalia’s mobile penetration growth rate, 2000–20



Source: MaMillan Keck.
 Note: Penetration rates below 1 percent are disregarded due to the unreliability of data in this nascent stage of development. RoC = Rate of Change.

Somalia performed much better during 2000–20 than some other countries in conflict. Subscriber growth rates were already increasing year-on-year in 2005 at the onset of this period and continued to increase through 2009. Growth rates declined from 2009 through 2010, most likely reflecting the increased violence around the battle for Mogadishu. Growth rates again increased from 2011 through 2013 but have steadily declined since 2013 as the penetration among the part of the population that could afford service approached saturation.

The yellow line in figure 18 represents the average annual mobile penetration growth rate during two periods – the pre-conflict period from 2000 through 2004 and the conflict period from 2005 through 2020. The grey line in figure 18 represents the average but-for-the-conflict annual penetration growth rate during the conflict period. The difference between the grey and yellow lines during the conflict period is the average annual growth rate deficit. With an actual annual growth rate of 2.01 percent and a but-for-the-conflict annual growth rate of 2.30 percent, Somalia thus experienced a 13 percent deficit in its average annual growth rate during the conflict.

5.5 Correlating Somalia's supply-side investment climate and teledensity

The assessment of Somalia can inform an overall view of the relationship between the supply-side telecom investment climate and mobile teledensity evolution during the conflict.

Somalia was assessed as having an internal factor investment climate rating of 6 and an external factor investment climate rating of 4. Key internal factors included (1) absence of an active government enabling market entry and investment, (2) spectrum needs being met, and (3) the absence of an unfavorable environment on level playing field and fiscal reasonableness. These factors were capitalized on by a vibrant and entrepreneurial private sector, but predatory behavior by the increasingly dominant operator group (HTG) suppressed the potential benefits to some degree. The key external factors were (1) broad arms embargoes on technology and technical assistance, (2) lack of international aid to the telecom sector, and (3) mitigation of the impact of the conflict by African Union military support for peacekeeping. Somalia's recent requalification for investment aid portends the potential for strengthening the sector, but only if continued violence by Al-Shabaab can be brought under control.

Somalia's actual average annual teledensity growth rate suffered a 13 percent decline compared with its projected but-for-the-conflict teledensity growth rate. Nonetheless, teledensity continued to grow (albeit at a reduced rate) during the conflict. Significantly, Somalia's teledensity growth rate deficit was lower than that of all the countries studied except Afghanistan and Iraq (both of which experienced unique circumstances in terms of investment climate due to the pro-development impetus of the US-led international coalitions leading the post-invasion occupations of those countries).

6

Republic of South Sudan

This case study assesses the impact on the telecom sector of the civil war in South Sudan from December 2013 through February 2020.

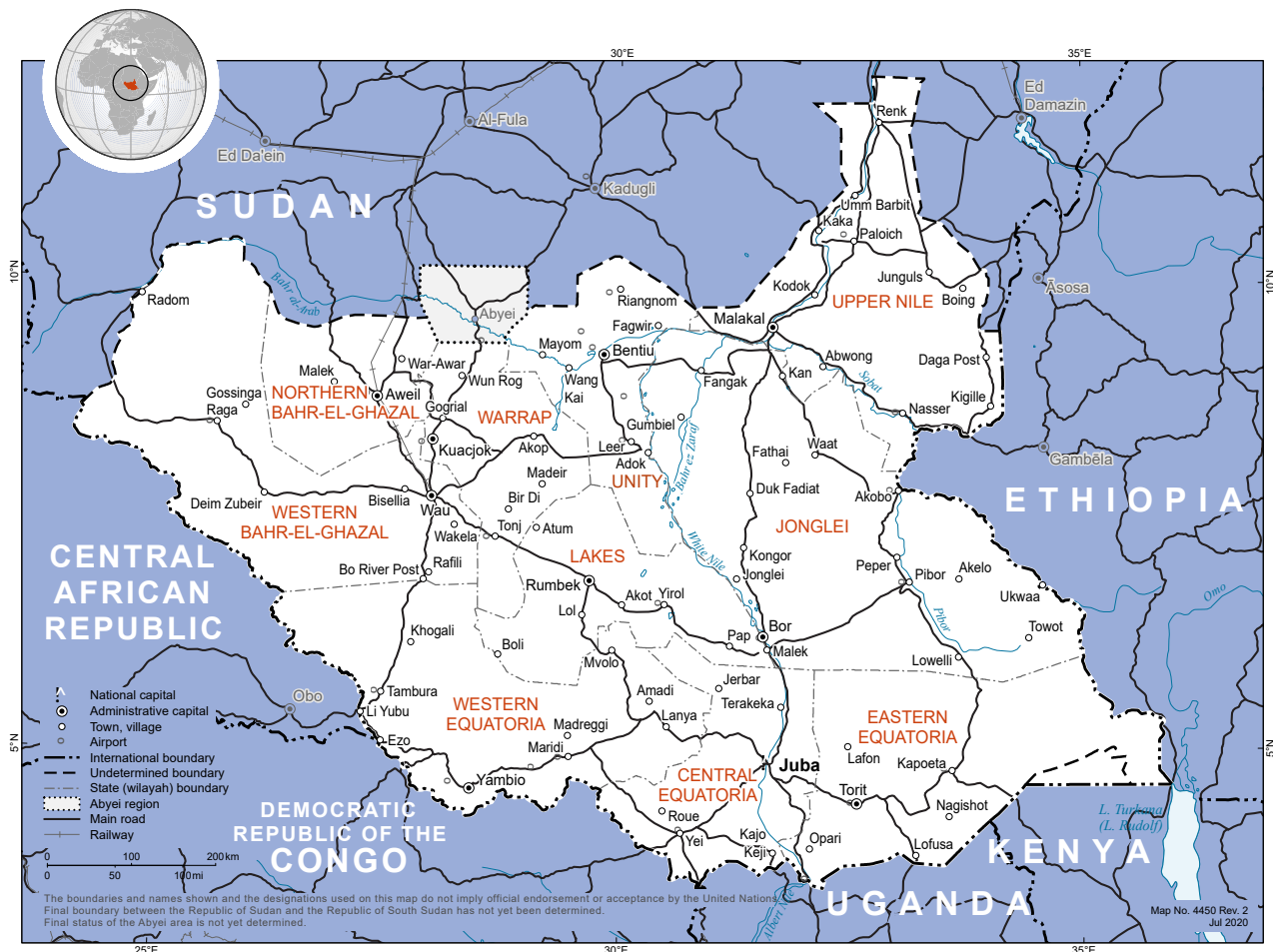
6.1 South Sudanese context

The following passages provide information on South Sudan's geography, demographics, and economy; the 2013–20 civil war; and the telecom sector.

South Sudan's geography, demographics, and economy

South Sudan is located in the eastern part of Central Africa, south of Sudan, north of Uganda and Kenya, and west of Ethiopia (map 5). It is also bordered by the Central African Republic to the west and the Democratic Republic of Congo to the southwest. South Sudan is landlocked.

Map 5: South Sudan



Source: UN Geospatial > South Sudan (July 1, 2020), <https://www.un.org/geospatial/content/south-sudan-1>.

South Sudan has a population of about 11.2 million⁵⁰⁷ and a land area of 631,928 square kilometers⁵⁰⁸ (about 243,989 square miles). The country's population is widely distributed, with denser clusters found in urban areas in the western interior and around the White Nile.⁵⁰⁹ Just over 20 percent of the population lives in urban areas.⁵¹⁰ South Sudan is currently divided into 10 states and three administrative areas.⁵¹¹ Juba, the capital of South Sudan and the Central Equatoria state, has a population of about 403,000.⁵¹² Life expectancy at birth is currently 57 years for males and 60 years for females.⁵¹³

South Sudan's terrain comprises plains in the north and center, which rise to southern highlands along the border with Uganda and Kenya.⁵¹⁴ The White Nile, flowing north out of the uplands of Central Africa, and its tributaries are the country's major geographic feature.⁵¹⁵ The Sudd is a large, swampy area of more than 100,000 square kilometers (about 38,610 square miles) fed by the waters of the White Nile, dominating the center of the country and hindering navigation. The size of the Sudd varies throughout the year, but it can reach 15 percent of the country's total land area during the rainy season and is one of the world's largest wetlands.⁵¹⁶

About 75 percent of South Sudan's lands are suitable for agricultural production, but the country is unable to meet its food security needs due to years of conflict and structural constraints on agricultural production.⁵¹⁷ The climate is tropical, hot with seasonal rainfall, and influenced

by the annual shift of the Inter-Tropical Convergence Zone. Rainfall is heaviest in the upland areas of the south and diminishes to the north.⁵¹⁸

Gross domestic product (GDP) per capita, based on purchasing power parity, was an estimated USD 791 in 2020 (having steadily declined from USD 3,101 in 2011).⁵¹⁹ GDP composition by sector of origin in 2016 was about 68 percent services, 11.4 percent agriculture, and 20 percent industry.⁵²⁰ South Sudan's primary natural resources are the Nile (which can support navigation, hydropower, and water supply), petroleum, fertile agricultural land, gold, silver, iron ore, copper, and other minerals.⁵²¹ Crude petroleum and gold together accounted for 98.8 percent of all exports in 2020.⁵²² The labor force was about 4.6 million in 2020,⁵²³ but a large percentage of the working population is engaged in nonwage work, chiefly in subsistence agriculture and livestock rearing.⁵²⁴ Unemployment was about 12.7 percent in 2020.⁵²⁵ About 82 percent of the population lives below the poverty line.⁵²⁶

Today, only about 1 percent of the population has access to the electricity grid,⁵²⁷ while about 5.7 percent have access to solar and on-site power generation.⁵²⁸ About 10 percent of the population has access to sanitary facilities and 40 percent has access to safe drinking water.⁵²⁹ The literacy rate in 2018 was 34.5 percent, including 40.3 percent of males and 28.9 percent of females.⁵³⁰

507 World Bank > Data > Population, total – South Sudan (2020).

508 World Bank > Data > Land area (sq. km) – South Sudan (2020).

509 See ReliefWeb, United Nations Office for the Coordination of Humanitarian Affairs (OCHA) > South Sudan > South Sudan: Population Density by State (November 16, 2020), <https://reliefweb.int/map/south-sudan/south-sudan-population-density-state-november-2020>.

510 World Bank > Data > Urban Population (% of total population) – South Sudan (2020).

511 See Denis Dumo, "South Sudan Cuts Number of States from 32 to 10, Unlocking Peace Process," Reuters (February 15, 2020), <https://www.reuters.com/article/us-southsudan-politics/south-sudan-cuts-number-of-states-from-32-to-10-unlocking-peace-process-idUSKBN2090AM>. See also Daniel Akech Thong, "10, 21, 28, 32, ? Why South Sudan's Peace Might Rest on a Number" (African Arguments, February 18, 2020), <https://africanarguments.org/2020/02/10-21-28-32-south-sudan-peace-number-states/>.

512 United Nations Department of Economics and Social Affairs > World Urbanization Prospects > Annual Population of Urban Agglomerations with 300,000 or More > Juba (2020 est. based on 2018 data), <https://population.un.org/wup/DataQuery/>.

513 United Nations Population Fund > World Population Dashboard > South Sudan (2021), <https://www.unfpa.org/data/world-population/SS>.

514 IndexMundi > Factbook > Countries > South Sudan > Geography > South Sudan Terrain (2021), https://www.indexmundi.com/south_sudan/terrain.html.

515 Mohy el Din Sabr, "South Sudan," Britannica (2021), <https://www.britannica.com/place/South-Sudan>.

516 See UN Environment Program, "Are South Sudan's Wetlands in Danger of Drying Up?" (August 7, 2017), <https://www.unep.org/news-and-stories/story/are-south-sudans-wetlands-danger-drying-0>.

517 See "South Sudan: Conflict and Food Insecurity" (Global Agricultural Monitoring, College Park, MD, April 16, 2020), https://cropmonitor.org/documents/CONFLICT/reports/Conflict_Report_20200401_South_Sudan.pdf.

518 World Bank Group > Climate Change Knowledge Portal > Country > South Sudan > Current Climate > Climatology (2021), <https://climateknowledge-portal.worldbank.org/country/south-sudan/climate-data-historical>.

519 Knoema > World Data Atlas > South Sudan > Economy > South Sudan – Gross Domestic Product per Capita Based on Purchasing-Power-Parity in Current Prices (2020), <https://knoema.com/atlas/South-Sudan/GDP-per-capita-based-on-PPP>.

520 See globalEDGE > Countries > South Sudan > Economy > GDP Composition % (Michigan State University Broad College of Business, 2016) (based on World Bank data), <https://globaledge.msu.edu/countries/south-sudan/economy>.

521 United Nations Development Programme > South Sudan (2021), https://www.ss.undp.org/content/south_sudan/en/home/countryinfo.html.

522 Daniel Workman, "South Sudan's Top 10 Exports" (World's Top Exports, 2020), <https://www.worldstoptopexports.com/south-sudans-top-10-exports/>.

523 World Bank > Data > Labor Force, Total – South Sudan (2020).

524 United Nations Development Programme > South Sudan (2021), https://www.ss.undp.org/content/south_sudan/en/home/countryinfo.html.

525 Knoema > World Data Atlas > South Sudan > Economy > South Sudan – Unemployment Rate (2020), <https://knoema.com/atlas/South-Sudan/Unemployment-rate>.

526 World Bank > Where We Work > South Sudan > Overview (2021), <https://www.worldbank.org/en/country/southsudan/overview#1>.

527 Maria Gallucci, "South Sudan Is Building Its Electric Grid Virtually From Scratch," IEEE Spectrum (March 13, 2020), <https://spectrum.ieee.org/south-sudan-rebuilding-grid-from-scratch>.

528 World Bank > Data > Access to Electricity (% of population) – South Sudan (2019).

529 United Nations Children's Fund (UNICEF), "Water, Sanitation and Hygiene (WASH) Briefing Note" (UNICEF, New York, April-June 2021), <https://www.unicef.org/southsudan/documents/wash-briefing-note>.

530 UNESCO Institute for Statistics > Country > South Sudan > Education and Literacy (2021), <http://uis.unesco.org/en/country/ss>.

The 2013–20 conflict in South Sudan

The South Sudan civil war began in 2013. It involved fighting between the officially recognized Government of South Sudan and a variety of opposition groups, including the Sudan People's Liberation Army-in-Opposition (SPLA-IO).⁵³¹ A formal peace agreement was concluded in September 2018⁵³² and a compromise unity government, the Revitalized Transitional Government of National Unity, was formed in February 2020, although localized inter- and intra-communal violence continues.⁵³³

The civil war broke out almost immediately upon commencement of self-government by newly independent South Sudan. In 2013, after a political struggle, South Sudan President Salva Kiir dismissed Vice President Riek Machar. This led to violence between supporters of Kiir and Machar, who were inflamed by tribal loyalties. Machar, leader of the SPLA-IO, has fled the country twice during the conflict, which has also included multiple broken peace agreements and deployment of United Nations (UN) peacekeeping forces to protect civilians.⁵³⁴ The conflict in South Sudan has seen horrific violence, including the Bentiu massacre in 2014.⁵³⁵ Violence re-escalated again in 2016.⁵³⁶ According to a 2018 report from the London School of Hygiene & Tropical Medicine, South Sudan suffered from an excess death toll between 2013 and 2018 of 382,900 people. In addition to those who died, 2 million people within South Sudan were displaced, and 2.5 million people became refugees in neighboring countries.⁵³⁷

Nine opposition groups formed the South Sudan Opposition Alliance in 2018 to negotiate with the government as a united front, leading to the February 2020 unity government. However, fighting between communities and government human rights abuses have continued. The drivers of communal violence include resource stress due to the interplay of a continued perception of insecurity affecting the ability to access natural resources and food,

inhibited livelihoods and coping capacities, and climatic events affecting pasture, water, and crops.⁵³⁸ In 2019, the International Monetary Fund estimated that real disposable income in South Sudan had declined 70 percent since independence in 2011.⁵³⁹

After February 2020, since the new government includes members of previously warring parties, related violence has declined. However, the peace deal is tenuous as its implementation has been delayed. It is also deemed not to have addressed the root causes of the war, including grudges between the country's leaders. According to the UN, political gridlock has continued, and the population is becoming disenchanted with the leadership on both sides.⁵⁴⁰ Safety and security continue to present dire threats, including not only violence, but also a food crisis, with relief organizations being unable to deliver humanitarian relief effectively.⁵⁴¹

South Sudan's telecom sector

Juba was once a communications hub in the territory that became South Sudan. Before the civil wars of 1955–72 and 1983–2005, Juba was an important link between northern and southern Sudan. Infrastructure and services were extremely basic: gravel roads, a bridge over the Nile, river transport, telegraph lines (reaching Suakin), and mail service. Juba served as an international trading and transport center and was connected by gravel roads with Kenya, Uganda, and Zaire/Congo. The long cycle of violence and conflict in South Sudan devastated Juba's physical infrastructure. As a population center controlled by the central government in the north, Juba and its physical infrastructure were frequently targeted by SPLA-aligned rebels. The roads were mined, the port in Juba (on the White Nile) could only be used by the central government army, and transportation and communications infrastructure could not be maintained or repaired.

531 Paul Aufiero, interview with Nyagoah Tut Pur, "South Sudan at a Crossroads" (Human Rights Watch, New York, July 9, 2021), <https://www.hrw.org/news/2021/07/09/south-sudan-crossroads#>.

532 Aaron Maasho, "South Sudan's President, Rebel Leader Sign Peace Deal," Reuters (September 12, 2018), <https://www.reuters.com/article/us-southsudan-unrest/south-sudans-president-rebel-leader-sign-peace-deal-idUSKCN1LS2PW>.

533 See Nick Cumming-Bruce, "South Sudan's Feuding Leaders Announce Unity Deal, Amid War Crimes Report," The New York Times (February 20, 2020), <https://www.nytimes.com/2020/02/20/world/africa/south-sudan-peace-deal.html>.

534 Council on Foreign Relations Global Conflict Tracker, "Civil War in South Sudan" (Council on Foreign Relations, New York, last updated May 19, 2021), <https://www.cfr.org/global-conflict-tracker/conflict/civil-war-south-sudan>.

535 See Jason Patinkin, "Report: U.N. Gave Arms to South Sudan Rebels Later Implicated in Massacre" The Washington Post (December 17, 2016), https://www.washingtonpost.com/world/africa/report-un-gave-arms-to-south-sudan-rebels-later-implicated-in-massacre/2016/12/15/d6910498-c23c-11e6-92e8-c07f4f671da4_story.html. "South Sudan Rivals Sign New Cease-Fire Deal," Al Jazeera America (August 25, 2014), <http://america.aljazeera.com/articles/2014/8/25/south-sudan-peace.html>.

536 UN Security Council Report S/2018/143 (United Nations, New York, February 20, 2018), 2–14, http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_2018_143.pdf.

537 See Francesco Checchi, Adrienne Testa, Abdihamid Warsame, Le Quach, and Rachel Burns, "Estimates of Crisis-Attributable Mortality in South Sudan, December 2013–April 2018" (London School of Hygiene & Tropical Medicine, September 2018), 19, <https://www.lshmt.ac.uk/south-sudan-full-report>.

538 See World Bank, "South Sudan Resilient Agricultural Livelihoods Project" (P169120), Concept Stage, Project Information Document, Report No: PIDISD-SC25688 (World Bank, Washington, DC, September 24, 2018), 3, <https://documents1.worldbank.org/curated/en/504951593500670358/pdf/Concept-Project-Information-Documents-PID-South-Sudan-Resilient-Agricultural-Livelihoods-Project-P169120.pdf>.

539 See International Monetary Fund (IMF), "South Sudan," Country Report No. 19/153 (IMF, Washington, DC, June 2019), 4, <https://www.imf.org/en/Publications/CR/Issues/2019/06/04/South-Sudan-2019-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-46965>.

540 See UN Security Council Report S/2021/365 (United Nations, New York, April 15, 2021), 8–9, <https://www.undocs.org/S/2021/365>.

541 See UN Security Council Report S/2021/365 (United Nations, New York, April 15, 2021), 15–16, <https://www.undocs.org/S/2021/365>.

The bridge fell into disrepair due to damage, overloading, and neglect. Many civilians fled, families became separated, and civilians could not communicate with each other. Access to and use of communications and transportation infrastructure was mainly by the military.⁵⁴²

The groundwork for South Sudan's telecom sector was laid while it was still part of the larger Sudan. On January 16, 1987, a decree was issued to establish the General Corporation for Wired and Wireless Communication, which initially owned 85 manual telephone exchanges with a capacity of 10 to 100 lines, the majority of which had been in use since 1965, and a capacity of 2,240 lines. In September 1993, the Sudanese Telecommunications Company (Sudatel) was established as a joint-stock company to replace the General Corporation for Wired and Wireless Communication. In 1996, the National Telecommunication Corporation (NTC) was established as sector regulator, with the intention of fostering free and fair competition.⁵⁴³ In 1997, Sudatel introduced Global System for Mobile Communications (GSM) mobile phone service in Sudan and soon structurally separated the mobile business under the name Mobitel.⁵⁴⁴

Celtel acquired a 39 percent interest in Mobitel in 2001.⁵⁴⁵ During the remaining war years, Mobitel's main customers in South Sudan were the central government and the army. Civilians using mobile phones were suspected of being SPLA supporters. Mobile phone usage became more widespread only after the peace agreement of 2005.⁵⁴⁶ Zain (formerly MTC) acquired Celtel and, in 2006, acquired the remaining 61 percent in a transaction valued at USD 1,332 million.⁵⁴⁷ After completion of its purchase of

Mobitel in 2006, Zain planned an expansion into the south – where suspicions of northern-owned mobile companies undermined investment opportunities – because Mobitel was now wholly owned by Kuwaiti investors.⁵⁴⁸ In 2007, Mobitel obtained debt financing from the OPEC Fund for International Development (USD 11.59 million) and Byblos Bank.⁵⁴⁹

In 2002, a second GSM was issued to the Lebanese company Areeba, which would compete with Mobitel. In 2006, Areeba was sold to the MTN Group. Also in 2006, Sudatel launched the Sudani network for mobile telephone services, to become the third mobile phone services provider in Sudan, and the first to provide 3G service.⁵⁵⁰ The 2005 peace accord had a substantial impact on the sector in South Sudan. As part of the 2005 agreement, semi-autonomous South Sudan was given the authority to award two separate mobile licenses. In addition, the accord permitted the national Government of Sudan to issue four nationwide mobile licenses, three of which (Zain, MTN, and Sudani) were already (or soon would be) operating in the south. South Sudan awarded its licenses to Network of the World (NOW) and local company Gemtel.⁵⁵¹ NOW launched mobile Rumbek, South Sudan, in January 2005,⁵⁵² but it never fully completed its network before selling a 75 percent stake to Lebanese-owned Vivacell in 2007, while the SPLA retained an indirect interest in the remaining 25 percent.⁵⁵³

542 See Mirjam de Bruijn and Inge Brinkman, "ICT and Society in Sudan: A Critical Historical-Anthropological Approach" (International Conference of the Euro-African Association for the Anthropology of Social Change and Development Catholic University of Leuven, Louvain-la-Neuve, Belgium, December 13–15, 2007), 2, <https://www.ascleiden.nl/Pdf/ApadQuestionsandIssues.pdf>.

543 See Sudatel Telecom Group > Sudatel Telecommunication Museum.

544 Initially, Mobitel was 40 percent owned by Sudatel and 60 percent owned by local investors associated with the National Congress Party. However, Sudatel had substantial investment from Gulf Cooperation Council investors, including Etisalat from the United Arab Emirates, and Etisalat was instrumental in expanding Mobitel's GSM network. See Osman Suliman, "Current Privatization Policy in Sudan" (2007), 3, https://www.researchgate.net/publication/255669186_CURRENT_PRIVATIZATION_POLICY_IN_SUDAN; Economist Intelligence Unit, "Sudan Country Profile" (Economist Intelligence Unit, London 1999), 17, https://www.iuj.ac.jp/mlic/EIU/Profile/Sudan/1999_Main_report.pdf.

545 See Mobile Telecommunications Company 2006 Earnings Release 15 (2006), https://researchafrica.net/policy/africa_wide_operators/ZAIN%20Group%20Annual%20Reports/2006_MTC_Annual_Report.pdf.

546 See Mirjam de Bruijn and Inge Brinkman, "ICT and Society in Sudan: A Critical Historical-Anthropological Approach" (International Conference of the Euro-African Association for the Anthropology of Social Change and Development Catholic University of Leuven, Louvain-la-Neuve, Belgium, December 13–15, 2007), 2, <https://www.ascleiden.nl/Pdf/ApadQuestionsandIssues.pdf>.

547 See "MTC Acquires African Mobile Operator Mobitel in Sudan," Press Release (Zain, Kuwait City, Kuwait, February 7, 2006), <https://www.zain.com/en/press/mtc-acquires-african-mobile-operator-mobitel-in-su/>. See also Haitham Haddadin, "MTC Buys Mobitel For \$1.33 Billion," Arab News (February 7, 2006), <https://www.arabnews.com/node/280044>.

548 See Skye Wheeler, "Zain Launches \$100-150 Mln South Sudan Expansion," Reuters (April 27, 2008), <https://www.reuters.com/article/sudan-zain-idUSMCD75138020080427>.

549 See OPEC Fund > Operations > Sudanese Mobile Telephone Company (Mobitel) (2021), <https://opecfund.org/operations/list/sudanese-mobile-telephone-company-mobitel>.

550 International Telecommunication Union (ITU), "Sudan Key Indicators of the Telecommunications/ICT Sector" (ITU, Geneva, September 2006), 3, https://www.itu.int/md/dologin_md.asp?id=D02-ISAP2B.1.1.1-INF-0007!!PDF-E.

551 See "Mobile Phone Network Launched in South Sudan" Reuters (February 23, 2009), <https://www.reuters.com/article/oukin-uk-sudan-south-telecoms-idUK-TRE51M5YL20090223>.

552 "Rumbek Gets First Mobile Phone," CommsUpdate (TeleGeography, Washington, DC, January 17, 2005), <https://www.commsupdate.com/articles/2005/01/17/rumbek-gets-first-mobile-phone/>.

553 "Vivacell Launches in South Sudan," CommsUpdate (TeleGeography, Washington, DC, February 24, 2009), <https://www.commsupdate.com/articles/2009/02/24/vivacell-launches-in-south-sudan/>.

In addition to its ownership interest in NOW, Gemtel was also apparently founded by leading SPLA commanders, with support from a Ugandan investor, to avoid surveillance of SPLA activities by the Sudan government.⁵⁵⁴ In 2006, the South Sudan government asked Uganda to permit Gemtel to use Uganda's international telephone country code (+256) to interconnect with Uganda Telecom Limited.⁵⁵⁵ This enabled Gemtel to provide international calling services without transiting through the Sudanese government's international gateway controlled from the north. The Libyan government's investment arm, LAP GreenN, which at the time was investing heavily in African mobile operators, purchased Gemtel in 2010.⁵⁵⁶

A memorandum of understanding (MoU) between Sudan and South Sudan in 2008 was designed to facilitate mobile development in South Sudan after the 2005 peace agreement. The MOU provided for NTC, the sector regulator for Sudan's national government, to be responsible for overall regulation, and about one-third of the NTC board members were to be representatives from South Sudan. According to the MoU, Sudatel, Canar (the second fixed operator), Zain, and MTN were to continue to provide nationwide services under their NTC licenses, including in South Sudan, while Vivacell and Gemtel were permitted to operate with their licenses issued by South Sudan. As of 2010, there were 317 mobile base stations and relatively competitive prices in South Sudan.

Gemtel had been using Uganda's gateway since 2006, which meant that to call a Gemtel customer from another Sudanese network, the calls had to transit through Hong Kong SAR, China, and Uganda, making Gemtel subscriptions expensive (but avoiding transit through Khartoum). The MOU provided for a separate international gateway and a contract was issued to Ericsson for its construction to be completed in 2012, but the gateway was not established until 2019.⁵⁵⁷ Despite the terms of the MoU, the fact that neither Gemtel nor Vivacel had a license from the National Telecommunications Authority (the regulatory body in South Sudan) made it difficult for them to obtain financing.⁵⁵⁸

Negotiations between the Government of Southern Sudan, the NTC (the regulator in Sudan), and the central government stagnated in 2007. There was continuing disagreement between the parties about the precise conditions of network licensing and gateway usage. Representatives of the southern government argued that Gemtel (and NOW) should be allowed to operate in the north, just as the northern operators were entitled to roll out their networks in the south.

The NTC opposed Gemtel's use of the Ugandan dialing code, while southern representatives pointed out that they were entitled to a separate gateway. Because of these political controversies, both the Sudani and Mobitel networks only functioned intermittently in Juba and their rollout plans were stalled by the South Sudanese government.⁵⁵⁹

In 2011, when South Sudan attained independence, five mobile operators already had networks in its territory: Gemtel, MTN Sudan, Sudani, Vivacell, and Zain. Zain and MTN Sudan announced plans for major new infrastructure investments. State-owned NileTel was also issued a mobile license in 2017 but never commenced service.⁵⁶⁰ The new government wanted to develop its communications infrastructure with a focus on competitive private investment. As a landlocked country, South Sudan did not have any direct connections to international submarine cables and had no terrestrial fiber network. Fiber-based international connectivity would require cross-border terrestrial links through Kenya, Ethiopia, or Sudan, and metropolitan ring fiber would need to be put in place. Combined with low per capita income, South Sudan's expensive international and backhaul connectivity made for a challenging mobile market.

The 2012 National Communication Act established the National Communications Authority as an independent sector regulator and set out the basic framework for licensing and regulation of a competitive mobile market, including provisions for establishment of a universal service fund. However, the licensing provisions did not set out a clear framework for the transition of previously issued licenses (whether issued by the NTC or the Government of South Sudan).⁵⁶¹

554 See Hilde F. Johnson, "South Sudan: The Untold Story from Independence to Civil War" 34 (I.B. Tauris, London, 2016).

555 See "UTL Loses Court Case, to Pay Billions in Interconnection Fees," Uganda Monitor (September 14, 2017), <https://www.monitor.co.ug/uganda/business/technology/utl-loses-court-case-to-pay-billions-in-interconnection-fees-1718182>.

556 See "LAP Green Flags Launches in Sierra Leone, Togo, South Sudan; Pursuing Acquisitions in Burundi, DRC, Ethiopia, Tanzania, Equatorial Guinea," CommsUpdate (TeleGeography, Washington, DC, December 12, 2011), <https://www.commsupdate.com/articles/2011/12/12/lap-green-flags-launches-in-sierra-leone-togo-south-sudan-pursuing-acquisitions-in-burundi-drc-ethiopia-tanzania-equatorial-guinea/>.

557 "South Sudan Launches International Voice Gateway" CommsUpdate (TeleGeography, Washington, DC, May 24, 2019), <https://www.commsupdate.com/articles/2019/05/24/south-sudan-launches-international-voice-gateway/>.

558 Rupa Ranganathan and Cecilia M. Briceño-Garmendia, South Sudan's Infrastructure: A Continental Perspective 34 (World Bank, Washington, DC, June 2011), <https://ppiaf.org/documents/3157/download>.

559 See Mirjam de Bruijn and Inge Brinkman, "ICT and Society in Sudan: A Critical Historical-Anthropological Approach" (International Conference of the Euro-African Association for the Anthropology of Social Change and Development Catholic University of Leuven, Louvain-la-Neuve, Belgium, December 13–15, 2007), 5–6, <https://www.ascleiden.nl/Pdf/ApadQuestionsandIssues.pdf>.

560 World Bank and Altai Consulting, "Mobile Money Ecosystem in South Sudan" (World Bank and Altai Consulting, Washington, DC, 2019), <https://documents1.worldbank.org/curated/en/460341563539588094/pdf/Mobile-Money-Ecosystem-Survey-in-South-Sudan-Exploring-the-Current-and-Future-Potential-of-Using-Mobile-Money-for-Effective-Humanitarian-and-Development-Cash-Programming-Executive-Summary.pdf>.

561 See South Sudan National Communication Act 2012, <https://ictpolicyafrica.org/en/document/bfc7dffmhxj>.

Beginning in 2013, the prospects for increased private sector investment began to turn negative, although MTN continued its investment program. In March 2013, Sudatel Telecom Group announced its intention to divest its African mobile holdings, including Sudatel in South Sudan (Sudani).⁵⁶² South Sudan had not yet established a proper regulatory framework when the conflict erupted in 2013. Existing operators expressed concern over potential requirements for open access and infrastructure sharing requirements due to the high costs of network build-out, and it was generally recognized that regulatory capacity and experience were low.⁵⁶³ In January 2014, the Government of South Sudan shut down the mobile network in Upper Nile for security reasons due to increased fighting between government and rebel troops.⁵⁶⁴ MTN announced plans for a USD 76 million investment in its mobile network in South Sudan in 2014.⁵⁶⁵

However, by 2016, MTN was reporting that it was cutting its workforce and canceling its expansion plans due to the poor financial outlook, noting that its customers were faced with a choice of buying a phone, buying airtime, or buying bread.⁵⁶⁶ Zain similarly scaled back operations in 2016, noting that it was going into survival mode.⁵⁶⁷ In 2017, as the crisis in South Sudan continued, the government launched a new operator, Niletel, with 25 percent government ownership. The government claimed that MTN and Zain were on the “verge of collapsing.”⁵⁶⁸ The year 2017 also saw increases in taxes on telecom services.⁵⁶⁹ Since its auspicious beginning with five networks, the number of competing operators has contracted to only two: Zain and MTN. Vivacell was shut down by the government in 2018,

allegedly for failure to pay USD 66 million in license fees and taxes, although the terms of its license gave it a 25-year tax holiday. Vivacell’s closure left 900,000 subscribers without service overnight and sent a chill through the market.⁵⁷⁰

As of June 2019, the National Communications Authority still had not issued licenses to Zain or to MTN. While the 2012 Communications Act also provides for interconnection, in practice interconnection in South Sudan had not yet been achieved.⁵⁷¹ In addition to the delayed launch of its international gateway, 2019 saw the first fiber construction in South Sudan, with Liquid Telecom seeking to add a direct fiber link to Uganda,⁵⁷² and the launch of mobile money services. The first mobile money platform was M-Gurush, which offered its services through a partnership with Zain, followed quickly by Nilepay, which also partnered with Zain. While mobile money has generally been a success, the high illiteracy rate and lack of ID cards within the population, added to the fact that MTN was effectively excluded from the market, have slowed growth.⁵⁷³

In 2021, Zain launched 4G service in Juba,⁵⁷⁴ and in July 2021, the government announced the launch of a third mobile operator, Digitel.⁵⁷⁵ In October, MTN announced a new USD 120 million investment program for its operations in South Sudan, and MTN announced that it had received regulatory approval to offer mobile money services, although the situation remains unclear as to whether this is under its existing NTC-issued license or a new license.⁵⁷⁶

562 “Sudatel Plots Mass Exodus: African Subsidiaries Up for Grabs,” CommsUpdate (TeleGeography, Washington, DC, March 22, 2013), <https://www.commsupdate.com/articles/2013/03/22/sudatel-plots-mass-exodus-african-subsidiaries-up-for-grabs/>.

563 African Development Bank, “Infrastructure Action Plan in South Sudan” (African Development Bank, Abidjan, Côte d’Ivoire, 2013), 278–82, <https://www.afdb.org/en/countries/east-africa/south-sudan/infrastructure-action-plan-in-south-sudan-a-program-for-sustained-strong-economic-growth>.

564 “Mobile Network Shut Down as Fighting Intensifies,” CommsUpdate (TeleGeography, Washington, DC, January 20, 2014), <https://www.commsupdate.com/articles/2014/01/20/mobile-network-shut-down-as-fighting-intensifies/>.

565 “MTN Embarks on Network Expansion Project” CommsUpdate (TeleGeography, Washington, DC, May 13, 2014), <https://www.commsupdate.com/articles/2014/05/13/mtn-embarks-on-network-expansion-project/>.

566 “Future Looks Bleak for MTN in South Sudan: Expansion Plans Scrapped,” CommsUpdate (TeleGeography, Washington, DC, March 31, 2016), <https://www.commsupdate.com/articles/2016/03/31/future-looks-bleak-for-mtn-in-south-sudan-expansion-plans-scrapped/>.

567 “Zain Scales Back Operations to Survive South Sudan Crisis,” CommsUpdate (TeleGeography, Washington, DC, August 30, 2016), <https://www.commsupdate.com/articles/2016/08/30/zain-scales-back-operations-to-survive-south-sudan-crisis/>.

568 “South Sudan Launches New Operator Niletel amid Economic Crisis and Civil War,” CommsUpdate (TeleGeography, Washington, DC, July 21, 2017), <https://www.commsupdate.com/articles/2017/07/21/south-sudan-launches-new-operator-niletel-amid-economic-crisis-and-civil-war/>.

569 “South Sudan Approves Increase in Telecoms Service Tax,” CommsUpdate (TeleGeography, Washington, DC, 8September 8, 2017), <https://www.commsupdate.com/articles/2017/09/08/south-sudan-approves-increase-in-telecoms-service-tax/>.

570 See Denis Dumo, “South Sudan Suspends Vivacell’s Mobile Network over Unpaid Licence Fee,” Reuters (March 28, 2018), <https://www.reuters.com/article/southsudan-telecoms/update-1-south-sudan-suspends-vivacells-mobile-network-over-unpaid-licence-fee-idUSL8N1RA2X0>. See also “Vivacell Shut Down for Failing to Pay Taxes,” CommsUpdate (TeleGeography, Washington, DC, March 28, 2018), <https://www.commsupdate.com/articles/2018/03/28/vivacell-shut-down-for-failing-to-pay-taxes/>.

571 World Bank, “Mobile Money Ecosystem in South Sudan” (World Bank, Washington, DC, June 2019), 17, <https://documents1.worldbank.org/curated/en/460341563539588094/pdf/Mobile-Money-Ecosystem-Survey-in-South-Sudan-Exploring-the-Current-and-Future-Potential-of-Using-Mobile-Money-for-Effective-Humanitarian-and-Development-Cash-Programming-Executive-Summary.pdf>.

572 “Cable Compendium: A Guide to the Week’s Submarine and Terrestrial Developments,” CommsUpdate (TeleGeography, Washington, DC, July 5, 2019), <https://www.commsupdate.com/articles/2019/07/05/cable-compendium-a-guide-to-the-weeks-submarine-and-terrestrial-developments/>.

573 Sam Mednick, “South Sudan Launches Mobile Money to Boost Recovery from War,” AP News (September 26, 2019), <https://apnews.com/article/492f-79bcc3c8424d8421665caaf7b1c>; Sheila Ponnice, “South Sudan Gets Mobile Money Service,” ReliefWeb (United Nations Office for the Coordination of Humanitarian Affairs, New York, July 25, 2019), <https://reliefweb.int/report/south-sudan/south-sudan-gets-mobile-money-service>.

574 “Zain Launches 4G in South Sudan,” CommsUpdate (TeleGeography, Washington, DC, March 8, 2021), <https://www.commsupdate.com/articles/2021/03/08/zain-launches-4g-in-south-sudan/>.

575 “New Mobile Operator Digitel Launches in South Sudan,” CommsUpdate (TeleGeography, Washington, DC, July 14, 2021), <https://www.commsupdate.com/articles/2021/07/14/new-mobile-operator-digitel-launches-in-south-sudan/>.

576 “MTN Plans to Invest USD120m in South Sudan,” CommsUpdate (TeleGeography, Washington, DC, October 12, 2021), <https://www.commsupdate.com/articles/2021/10/12/mtn-plans-to-invest-usd120m-in-south-sudan/>.

6.2 Assessment of internal South Sudanese telecom investment climate factors

Five internal factors during the conflict that impacted the climate for telecom investment in South Sudan were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

South Sudan: Market open to entry?

When it attained independence in 2011, South Sudan had five active mobile operators, three of which were also embarking on major investment initiatives. Subsequently, the number of competing operators has contracted to only two, Zain and MTN. Vivacell was shut down in 2018, allegedly for failure to pay USD 66 million in license fees and taxes, leaving 900,000 subscribers without service,⁵⁷⁷ and the regulator forced it to halt service.⁵⁷⁸ State-owned NileTel was issued a mobile license in 2017 but has not commenced service. Thus, multiple voluntary and forced exits during the conflict period reduced the market to two active operators. Neither of these has clarity on its license status, and both operators are still operating under the 2008 intergovernmental arrangement.

South Sudan was assigned an *unfavorable* score for market openness to entry during 2013–20.

South Sudan: Ease of private investment?

Although initial prospects for investment were positive, with Gemtel, Zain, and MTN all announcing new sector infrastructure rollouts, during the conflict period, private investment in the mobile market was dramatically curtailed. Sudatel appears never to have made a major push in South Sudan, Gemtel stopped operating in 2016, and Vivacell was shut down by the government in 2018. South Sudan's perceived corruption levels are among the worst in the world, ranked 179 of 180 by Transparency International in 2020.⁵⁷⁹

The conflict hit telecom investment hard, causing substantial damage to networks and ending progress toward establishing a proper legal framework. Barriers to investment included network shutdowns by the government; a weak investment climate, including weak infrastructure and high input prices; lack of political stability; and deteriorating economic conditions. Zain's subscriber base fell by almost half between 2013 and 2017.⁵⁸⁰

Private investment appears to have picked up since the resolution of the conflict. In March 2019, MTN Group announced plans to invest up to USD 35 million in modernizing and expanding its operations in South Sudan following a period of cutbacks. In February 2020, Liquid Telecom completed an international fiber link to South Sudan, its first, connecting Juba directly to Liquid's submarine landing station at Mombasa, Kenya.⁵⁸¹

In October 2021 (which was after the end of the time-bound study period), MTN Group announced plans to invest USD 120 million in its operations in South Sudan, including rolling out a mobile money service, over the next three years.⁵⁸²

South Sudan was assigned an *unfavorable* rating for ease of private investment during 2013–20.

South Sudan: Spectrum needs met?

South Sudan's regulatory framework is still not secure, and this resulted in regulatory uncertainty during the conflict period over the scope and duration of spectrum assignments. These uncertainties included different spectrum fees associated with the rival licensing frameworks, even after independence.⁵⁸³ The South Sudanese government appears to have resolved these issues sufficiently that MTN launched 4G in Juba in December 2020⁵⁸⁴ and Zain launched 4G service in March 2021,⁵⁸⁵ but these developments were too late to impact market performance during the 2013–20 conflict period. South Sudan was assigned an *uncertain* rating for meeting mobile spectrum needs.

577 See Denis Dumo, "South Sudan Suspends Vivacell's Mobile Network over Unpaid Licence Fee," Reuters (March 28, 2018), <https://www.reuters.com/article/southsudan-telecoms/update-1-south-sudan-suspends-vivacells-mobile-network-over-unpaid-licence-fee-idUSL8N1RA2X0>.

578 "Vivacell Shut Down for Failing to Pay Taxes," CommsUpdate (TeleGeography, Washington, DC, March 28, 2018), <https://www.commsupdate.com/articles/2018/03/28/vivacell-shut-down-for-failing-to-pay-taxes/>.

579 See Transparency International > Corruption Perceptions Index > South Sudan (2020), <https://www.transparency.org/en/cpi/2020/index/ssd#>.

580 World Bank and Altai Consulting, "Mobile Money Ecosystem in South Sudan" (World Bank and Altai Consulting, Washington, DC, 2019), 17, <https://documents1.worldbank.org/curated/en/460341563539588094/pdf/Mobile-Money-Ecosystem-Survey-in-South-Sudan-Exploring-the-Current-and-Future-Potential-of-Using-Mobile-Money-for-Effective-Humanitarian-and-Development-Cash-Programming-Executive-Summary.pdf>.

581 See James Barton, "South Sudan Gains Its First International Fibre Cable Link," Developing Telecoms (October 19, 2020), <https://developingtelecoms.com/telecom-business/market-reports-with-buddecom/10144-south-sudan-gains-its-first-international-fibre-cable-link.html>.

582 See "MTN Plans to Invest USD120m in South Sudan," CommsUpdate (TeleGeography, Washington, DC, October 12, 2021), <https://www.commsupdate.com/articles/2021/10/12/mtn-plans-to-invest-usd120m-in-south-sudan/>.

583 World Bank and Altai Consulting, "Mobile Money Ecosystem in South Sudan" (World Bank and Altai Consulting, Washington, DC, 2019), 16, <https://documents1.worldbank.org/curated/en/460341563539588094/pdf/Mobile-Money-Ecosystem-Survey-in-South-Sudan-Exploring-the-Current-and-Future-Potential-of-Using-Mobile-Money-for-Effective-Humanitarian-and-Development-Cash-Programming-Executive-Summary.pdf>.

584 See "Latest: MTN Finally Launches 4G Generation in the Capital, Juba," The South Sudan Herald (December 3, 2020), <https://thessherald.com/2020/12/03/latest-mtn-finally-launches-4g-generation-in-the-capital-juba/>.

585 "Zain Launches 4G to Improve Connectivity in South Sudan" Telecom Review Africa (March 10, 2021), <https://www.telecomreviewafrica.com/index.php/en/articles/telecom-operators/2190-zain-launches-4g-to-improve-connectivity-in-south-sudan>.

South Sudan: Level playing field?

The playing field in South Sudan is uneven and this has resulted in an imbalanced market structure. MTN and Zain were operating under licensing regimes and with licensing conditions that differed from the regional licenses awarded to Gemtel and Vivacell, and this imbalance appears to have been a major contributing factor in driving the latter two companies out of the market. There is no functioning interconnection obligation or competition regulation, and the government has now licensed state-owned Niletel while leaving the investor-owned incumbents with their old licenses in place.⁵⁸⁶

Even with only two operators, the market has become increasingly imbalanced, especially after the closure of Vivacell. As of December 31, 2018, MTN had a 53.1 percent subscriber share to Zain's 46.9 percent share.⁵⁸⁷ By June 30, 2021, MTN's subscriber share had risen to 63.8 percent.⁵⁸⁸

South Sudan was assigned an *unfavorable* score for level playing field.

South Sudan: Fiscal reasonableness?

South Sudan enacted a tax law under its interim Constitution in 2009, providing for a 20 percent income tax on large companies and a 10 percent excise tax on telecommunications services.⁵⁸⁹

Since the global decline in oil prices and the onset of civil war, the government has struggled to meet its financial commitments and has sought to increase taxes. The tax law was amended in 2017 to increase the corporate income tax to 25 percent, and an 18 percent sales tax was applied to imported goods.⁵⁹⁰

As one of the few formal sectors other than oil, the telecom sector has been targeted for increased fiscal contributions. The telecom sales tax rate was increased to 15 percent in 2018⁵⁹¹ and to 18 percent in the 2019–20 Finance Act.⁵⁹² Vivacell was shut down in 2018 for its alleged failure to pay USD 66 million in taxes, and the regulator forced it to halt service.⁵⁹³ A study for the World Bank of the mobile money ecosystem in South Sudan identifies high sector-specific taxes in South Sudan that compare unfavorably with the tax frameworks affecting mobile uptake in neighboring countries. In addition to the telecom excise tax, the study identifies import taxes on mobile phones that are as high as 20 percent as being a key reason for the unaffordability of phones in South Sudan.⁵⁹⁴

As summarized in table 17, South Sudan was assigned an *unfavorable* score for fiscal reasonableness due to its telecom-specific taxes and the uncertainty associated with the imposition, administration, and enforcement of taxes and nontax fiscal impositions.

Table 17: South Sudan: Fiscal reasonableness determination

SOUTH SUDAN: FISCAL REASONABLENESS, 2001–20			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
20% increasing to 25% corporate income tax in 2018	10% telecom service tax increasing to 15% in 2018 and 18% in 2019 20% import duty on phones	Limited transparency but apparently low due to carry-over of licenses	Lack of transparency and unequal enforcement Conflicting tax treatment Suspension of largest operator for nonpayment
South Sudan overall rating: Unfavorable			

Source: World Bank.

586 Niletel's homepage domain name has expired, leading to questions about its seriousness as a market participant. See <http://www.niletel-ss.com/>.

587 See "MTN invests in reviving South Sudanese unit," CommsUpdate. <https://www.commsupdate.com/lists/country/south-sudan/>

588 See "MTN Plans to Invest USD120m in South Sudan," CommsUpdate (TeleGeography, Washington, DC, October 12, 2021), <https://www.commsupdate.com/articles/2021/10/12/mtn-plans-to-invest-usd120m-in-south-sudan/>.

589 See Republic of South Sudan Taxation Act 2009, Schedules II & III, <http://www.mofep-grss.org/wp-content/uploads/2009/08/South-Sudan-Taxation-Act-2009.pdf>.

590 See Taxation Amendment Act, 2016, http://www.mofep-grss.org/wp-content/uploads/2017/02/Taxation-Act_2016.pdf.

591 "South Sudan Raises Tax on Telecoms Services" CommsUpdate (TeleGeography, Washington, DC, February 1, 2018), <https://www.commsupdate.com/articles/2018/02/01/south-sudan-raises-tax-on-telecoms-services/>.

592 See Schedule 1 of the 2019-2020 Financial Act, https://nra.gov.ss/docs/FY-2019-2020-Financial-Act_2.pdf.

593 "Vivacell Shut Down for Failing to Pay Taxes," CommsUpdate (TeleGeography, Washington, DC, March 28, 2018), <https://www.commsupdate.com/articles/2018/03/28/vivacell-shut-down-for-failing-to-pay-taxes/>.

594 See World Bank and Altai consulting, "Mobile Money Ecosystem Survey in South Sudan" (World Bank and Altai Consulting, Washington, DC, 2019), 6, <https://documents1.worldbank.org/curated/en/460341563539588094/pdf/Mobile-Money-Ecosystem-Survey-in-South-Sudan-Exploring-the-Current-and-Future-Potential-of-Using-Mobile-Money-for-Effective-Humanitarian-and-Development-Cash-Programming-Executive-Summary.pdf>.

South Sudan: Summary of key findings across all the internal factors

Table 18 summarizes the internal investment climate factor assessments and sets out the key relevant facts leading to each score.

Table 18: South Sudan: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Market open to entry	0	Multiple market exits Two remaining incumbents have no license certainty
Ease of private investment	0	2016 and 2018, state shut down mobile operators Zain and MTN curtailed investment for several years
Spectrum needs met	1	Uncertainty in spectrum use scope and duration
Level playing field	0	Dual licensing structure prejudicial, drove two operators from the market Market imbalance between remaining two operators is growing
Fiscal reasonableness	0	High level of sector-specific taxes Uncertain and uneven handling of taxation Suspension of largest operator for nonpayment of taxes
All	1	

Source: MacMillan Keck.

6.3 Assessment of external South Sudanese telecom investment climate factors

Five external factors during the conflict that impacted the climate for telecom investment in South Sudan were assessed: (1) military or paramilitary interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings for all the external factors.

South Sudan: Military or paramilitary interference?

South Sudan has a unique position on inward shipping. As a landlocked country, heavy shipments of goods must pass overland through multiple countries and border crossings. Once reaching South Sudan, they must be carried over a poor, mostly unpaved road system and with road transport through the center of the country seasonally blocked (forcing transport by boat) by the flooding of the Nile.

Reports have indicated that telecommunications infrastructure has been severely impacted. When the International Red Cross brought satellite phones to a town in South Sudan in 2014 and permitted residents to make three-minute phone calls, it was the first time they had been able to speak with relatives in two years.⁵⁹⁵ In 2018, a medical aid group in South Sudan was forced to suspend its mission when unidentified armed men stormed its compound and destroyed its vehicles and communications equipment.⁵⁹⁶ Logistics difficulties have included the downing of UN mission helicopters and the need to obtain prior government approval to transport goods.⁵⁹⁷

South Sudan was assigned an *unfavorable* rating for military or paramilitary interference.

⁵⁹⁵ "South Sudan – Three Minutes, One Call" (Legacy of War Project, Chester, VT, September 2015), <http://legacyofwar.com/south-sudan-three-minutes-one-call/>.

⁵⁹⁶ "Medical Aid Group MSF Suspends Work in Part of South Sudan after Office Overrun," Reuters (July 24, 2018), <https://www.reuters.com/article/uk-southsudan-unrest-idUKKBN1KE1Y0>.

⁵⁹⁷ "The Crisis in South Sudan," Humanitarian Exchange No. 68 (Overseas Development Institute, London, January 2017), 14, <https://odihpn.org/wp-content/uploads/2017/01/HE-68-web.pdf>.

South Sudan: International sanctions?

As equipment shipments travel through multiple countries over land from the port on the east coast of Africa, the carrier must pass through multiple border checkpoints with the potential to stop the shipment at any point due to the embargoes against South Sudan as a final destination. The country has been subject to various US, EU, and UN sanctions against arms imports, although none have been directed at telecommunications equipment or South Sudan's operators. In addition, non-state actors within South Sudan's territory effectively set up blockades requiring payment to allow goods to pass.⁵⁹⁸ There are widespread reports that both government and opposition troops set up checkpoints to extort money from aid agencies seeking to provide humanitarian assistance.⁵⁹⁹ In 2017, more than 70 checkpoints were established along the 400-mile road between Juba and the northern city of Bentiu, with soldiers or opposition forces demanding money or food, and the South Sudan government was denying 80 permits per month for transport flights for humanitarian assistance.⁶⁰⁰

South Sudan was assigned an *uncertain* rating for international sanctions during 2013–20.

South Sudan: Travel restrictions?

South Sudan's air space remained relatively dangerous throughout the 2013–20 conflict period, although regional air carriers served the Juba airport with scheduled flights for most of that period.

All commercial air traffic was suspended during and for a time after the December 2013 events at the outset of the conflict. Commercial flights were also suspended in June 2016 when the South Sudanese army declared its intention to shoot down aircraft without permits and/or not following proper procedures.⁶⁰¹

Although the September 2018 ceasefire in South Sudan has largely held, South Sudan's airspace was temporarily closed in April 2019 during and following the military coup in Sudan.⁶⁰² Overall, the political and security situation for

air travel to South Sudan remains volatile. In the event of a serious deterioration, similar to those in July 2016 and December 2013, the Juba airport may be closed on short notice. France, Germany, and the United Kingdom still advise their air carriers against flying over South Sudan below certain altitudes due to the risk posed by anti-aircraft weaponry. The United States rescinded a similar warning in August 2019.

The primary current risk faced by air carriers and their passengers is the poor quality of air traffic control provision for overflights below certain altitudes or for aircraft operating to or from the Juba airport. In January 2021, the International Civil Aviation Organization warned of service disruptions and lack of qualified air traffic control personnel, the lack of contingencies in place, communication issues, the number of withdrawn navigation aids, and the lack of information being supplied to operators on these issues.⁶⁰³ Although there were no travel restrictions on South Sudan during the conflict, most major world air carriers do not serve South Sudan and the regional carriers that fly into Juba face less than ideal security and safety.⁶⁰⁴ Many foreign governments have cautioned against traveling to South Sudan due to security reasons, including Canada,⁶⁰⁵ the United Kingdom,⁶⁰⁶ and the United States.⁶⁰⁷ South Sudan was assigned an *uncertain* rating for travel restrictions.

South Sudan: International aid for telecommunications?

South Sudan has received significant humanitarian aid from the international community for basic and urgent needs of the population, food assistance, and health care,⁶⁰⁸ but it received only negligible international aid for its telecom sector during the conflict.

South Sudan became a member of the World Bank Group in early 2012. The World Bank provided financial and technical support for regulatory support and development of a mobile payments and trade integration policy that led to the adoption of mobile money regulations by the

598 Øystein H. Rolandsen, "Trade, Peace-Building and Hybrid Governance in the Sudan-South Sudan Borderlands," *Conflict, Security & Development* 19, no. 1 (2019), <https://www.tandfonline.com/doi/full/10.1080/14678802.2019.1561628?scroll=top&needAccess=true>.

599 See "South Sudan Investment Climate Statement: South Sudan" (US Department of State, Washington, DC, 2021), <https://www.state.gov/reports/2021-investment-climate-statements/south-sudan>.

600 Kevin Sieff, "South Sudan's People Are Starving, and Fighters Are Blocking Aid," *The Washington Post* (March 31, 2017), https://www.washingtonpost.com/world/africa/south-sudans-people-are-starving-and-fighters-are-blocking-aid/2017/03/31/69ef31c2-0f60-11e7-aa57-2ca1b05c41b8_story.html.

601 "South Sudan: Security Forces Deliberately Preventing People from Leaving the Country," Press Release (Amnesty International, London, July 14, 2016), <https://www.amnesty.org/en/latest/press-release/2016/07/south-sudan-security-forces-deliberately-preventing-people-from-leaving-the-country/>.

602 "South Sudan," Safe Airspace Conflict Zone & Risk Database (2021), <https://safeairspace.net/south-sudan/>.

603 "South Sudan," Safe Airspace Conflict Zone & Risk Database (2021), <https://safeairspace.net/south-sudan/>.

604 See South Sudan Civil Aviation Authority website (last visited November 11, 2021), <https://www.sscaa.com/>; <https://www.sleepinginairports.net/survey/2017-worst-airports-overall-experience.htm>. Juba airport was ranked as the worst airport in the world in 2017 by the Sleeping in Airports website, but travelers considered the opening of a new terminal in 2018 a major improvement. See <https://www.sleepinginairports.net/survey/worst-airports-2019.htm>.

605 Travel Advice and Advisories for South Sudan (Government of Canada, May 4, 2021), <https://travel.gc.ca/destinations/south-sudan>.

606 GOV.UK > Passports, Travel and Living Abroad > Travel Abroad > Foreign Travel Advice > South Sudan (2021), <https://www.gov.uk/foreign-travel-advice/south-sudan/safety-and-security>.

607 Travel.State.Gov > Travel Advisories > Sudan Travel Advisory (2021), <https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories/sudan-travel-advisory.html>.

608 Erol Yayboke, "Accessing South Sudan: Humanitarian Aid in a Time of Crisis" (Center for Strategic and International Studies, Washington, DC, November 27, 2018), <https://www.csis.org/analysis/accessing-south-sudan-humanitarian-aid-time-crisis>.

Central Bank of South Sudan in December 2015.⁶⁰⁹ However, although the World Bank Group has provided substantial technical assistance and financial support to South Sudan, the planned financial support to the telecom sector, which was combined with a transport sector project (P131426), was canceled in 2018. In 2013, the African Development Bank provided technical assistance to the Government of South Sudan for telecommunications reform and development as part of a broader infrastructure action plan,⁶¹⁰ but again, the promised investment failed to materialize. South Sudan was assigned an *unfavorable* rating for international aid for telecommunications.

South Sudan: International security intervention?

South Sudan has received security support from the international community through the UN, but prior deployments of UN peacekeeping forces were unable to stop the fighting or casualties prior to the 2017 ceasefire.⁶¹¹

In December 2013, the UN authorized an increase in the peacekeeping force deployment in South Sudan from 7,600 to 13,600, and the Security Council voted to shift the mandate from nation-building to protection of civilians. An additional 4,000 troops were deployed in 2017.⁶¹² The UN Secretary-General's Special Representative has said that the United Nations was unprepared for the conflict in South Sudan, and the international community's interventions have not had a meaningful impact on the security situation.⁶¹³

South Sudan received an *unfavorable* rating for international security intervention.

South Sudan: Summary of key findings across all the external factors

Table 19 summarizes the scoring of external factors likely to have had an impact on the development of the telecom sector in South Sudan and the key relevant facts that form the basis for each score.

Table 19: South Sudan: Assessment of external factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Military interference	0	Armed militias disrupt supply routes and damage infrastructure
International sanctions	1	Non-state actors set up hundreds of checkpoints requiring payment for goods to move
Travel restrictions	1	Poor airspace and air traffic safety No major air carriers serve Juba
International aid for telecommunications	0	De minimis telecom-related aid
International security intervention	0	No effective security support
All	2	

Source: MacMillan Keck.

609 See World Bank Group, "Country Engagement Note for the Republic of South Sudan for the Period FY18–19," Report No. 120369[SS] (World Bank, Washington, DC, November 7, 2017), 36, <https://documents1.worldbank.org/curated/en/112071516734556800/pdf/IDA-R2017-0340-11172017.pdf>.

610 See African Development Bank, "Chapter 10 – Creation of a Communications Network," Infrastructure Action Plan in South Sudan: A Program for Sustained Strong Economic Growth (African Development Bank, Abidjan, Côte d'Ivoire, 2013), <https://www.afdb.org/en/countries/east-africa/south-sudan/infrastructure-action-plan-in-south-sudan-a-program-for-sustained-strong-economic-growth>.

611 Rick Gladstone, "U.N. Peacekeeping Chief Issues Warning on South Sudan," The New York Times (October 18, 2017), <https://www.nytimes.com/2017/10/17/world/africa/south-sudan-war.html>.

612 "Civil War in South Sudan," Global Conflict Tracker (Council on Foreign Relations, New York, November 10, 2021), <https://www.cfr.org/global-conflict-tracker/conflict/civil-war-south-sudan>.

613 Keiichi Tanabe, "Analysis of External Factors of Civil War in South Sudan: From Bilateral, Regional, and International Aspects" (2018), 12–19, <https://www.u-tokai.ac.jp/uploads/sites/5/2021/03/04.pdf>.

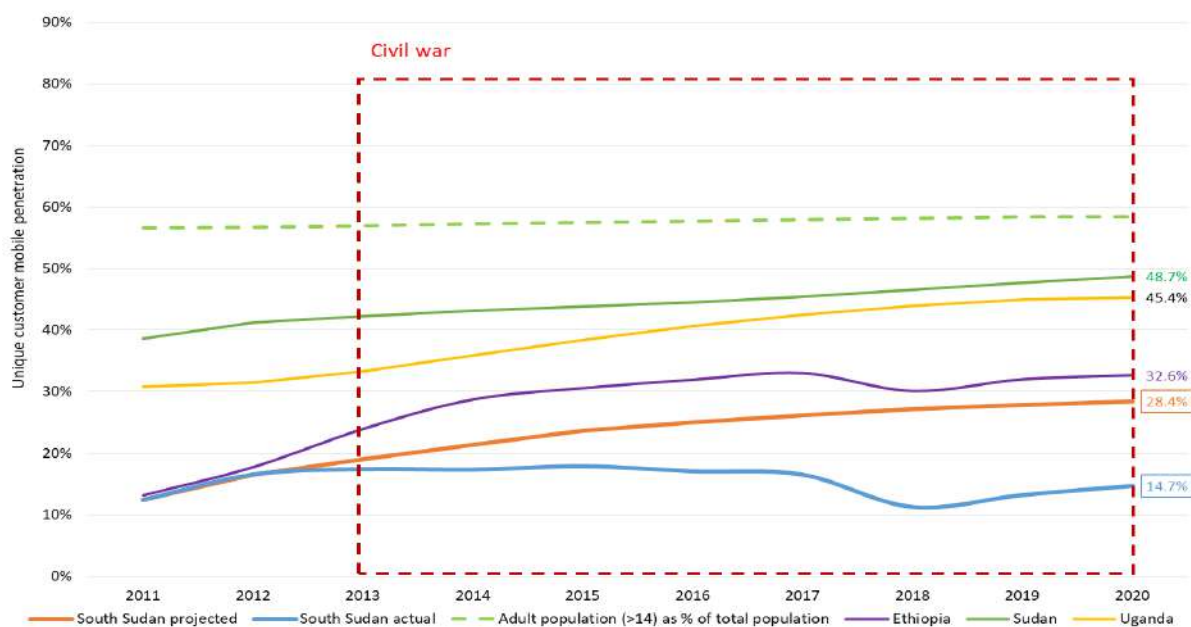
6.4 South Sudan's projected and actual teledensity evolution

The following passages discuss South Sudan's mobile teledensity evolution and the impact of the conflict.

South Sudan's unique subscriber mobile penetration

South Sudan's mobile penetration is considered from 2011 (when it became a separate country from Sudan) through 2020, including the South Sudan civil war from 2013 through 2020 (during half of which the war still continued). Figure 19 shows the results. The adult-age (15+) population (green dashed line in the graph) serves as an invisible upper bound on potential unique customer mobile penetration. Mobile penetration in Ethiopia, Sudan, and Uganda (the peer group) is also shown.

Figure 19: South Sudan's unique subscriber mobile penetration, 2011–20



Source: MacMillan Keck.

When it achieved independence in 2011, South Sudan's mobile penetration was less than half the mobile penetration in Sudan and Uganda, but it was almost the same as in Ethiopia. South Sudan's actual mobile penetration remained relatively flat from 2012 until 2015, then began to decline, experiencing a steep decline in 2018, and by 2020 had not recovered to 2012 levels. Under the but-for-the-conflict projections, South Sudan would still be behind all three countries in the peer group in mobile penetration, but it would have achieved about double its current level by 2020 – and would still be near the level in Ethiopia.

Although the demand side of South Sudan's market is severely challenged, supply-side impacts have contributed significantly to its teledensity underperformance. South Sudan's mobile operators have faced a relatively hostile domestic operating environment, with disputes over the validity of concessions previously issued by Sudan's government and network shutdowns by South Sudanese tax authorities. They also faced significant destruction of infrastructure during the conflict and declining demand due to austere macroeconomic conditions. All these factors have led to some market exits and discouraged investment by the remaining operators.

Unique subscriber penetration is at 14.7 percent against total subscriber identity module (SIM) penetration of 22.6 percent (a 53.7 percent differential). The actual growth profile shows no growth for two years and then a steady decline to 2018 before a mild recovery to 2020.

The lack of any regulatory certainty with regard to spectrum, licensing, and general market conditions meant that only two mobile operators (of four that were licensed in 2013) remained in 2020, and both appear to be stagnating. South Sudan's actual mobile penetration trend follows a similar profile (although significantly lower) to that of Ethiopia, but this is because the latter downgraded its estimates for mobile subscribers ahead of a planned partial privatization of the incumbent; in South Sudan, it was likely due to the ejection of Vivacell from the market.

South Sudan’s penetration in 2011 was almost 70 percent lower than that of Sudan, indicating that South Sudan suffered from a measure of neglect while it was part of Sudan. The situation improved during the period when two licenses (Vivacell and Gemtel – granted in 2006) and two concessions (MTN and Zain) were active – in 2011–13. However, after the conflict started, the situation held steady for a short while before declining. The projected penetration (the orange line in figure 19) presents a reasonably conservative growth path for a but-for-the-conflict scenario, behind the state-owned telco in Ethiopia and on a similar trend to Uganda and Sudan (in 2014–20).

South Sudan (MTN) introduced 4G services in December 2020, after 3G had been introduced in 2013. That by March 2021 both Zain and MTN had live 4G networks provides an indication that perhaps there is some commitment to grow the market, despite the difficult conditions prevailing. In comparison, Uganda and Sudan launched 4G service in 2015 and 2016, respectively, and Ethiopia only launched 4G via Etisalat in 2020.

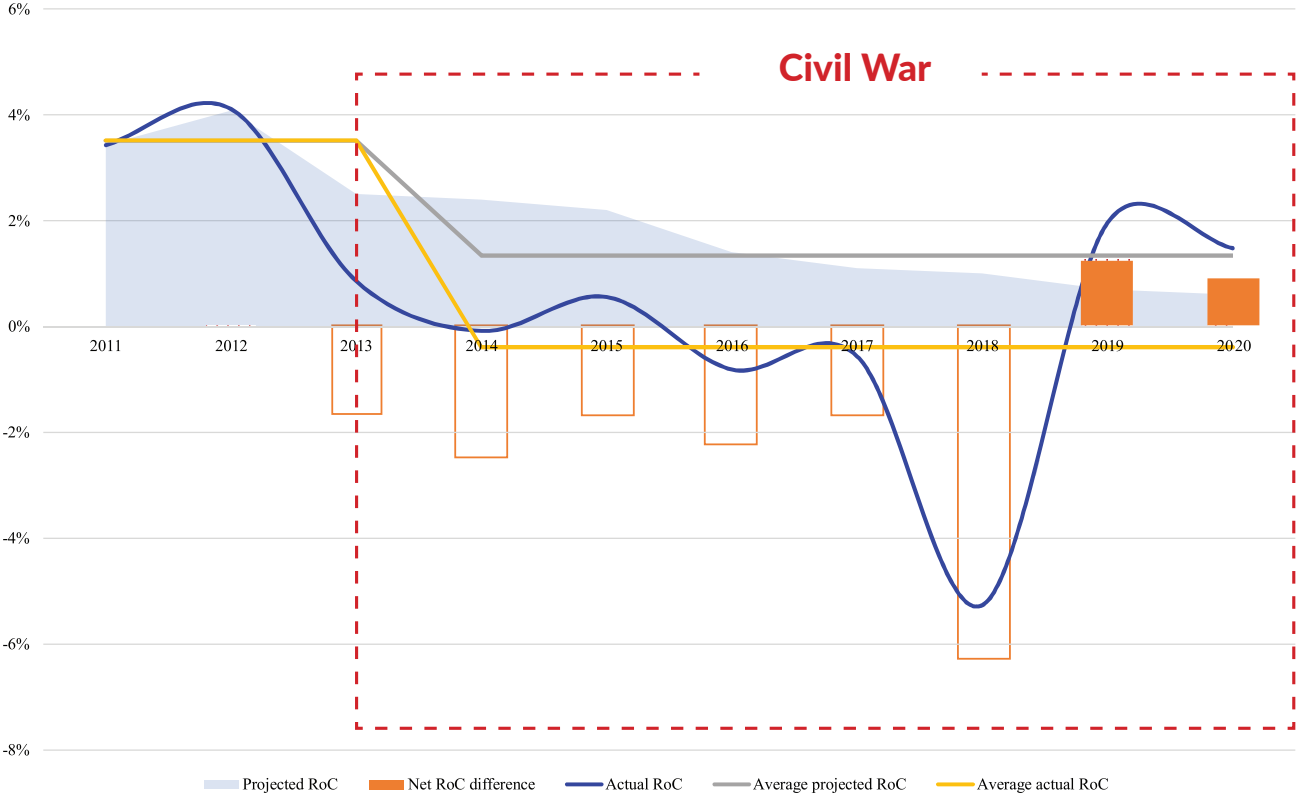
South Sudan (actual penetration 14.7 percent) is well below the notional limit of adult population (58 percent). This would indicate that the market is far behind where it should be with a projected penetration of 28.4 percent in a but-for-the-conflict scenario, still far behind the notional limit. The civil conflict has been devastating to the mobile telecom market, with Vivacell and Gemtel closing and Zain and MTN only now rebuilding their network capacity and technology. South Sudan’s peers show that they also are well below their notional adult population limit – Sudan at 48.7 percent penetration versus 60 percent adult population, Uganda at 45.4 percent penetration versus 53 percent adult population, and Ethiopia at 32.6 percent penetration versus 60 percent adult population.

With a 2020 deficit of 13.7 percentage points between the projected and actual penetration, the projection remains conservative in its view of potential market development in South Sudan. It is a very poor country with little infrastructure and is not likely to grow rapidly to catch up with its neighbors, especially with the competitive changes due in the Ethiopian market likely to cause a rapid jump in penetration there.

South Sudan’s mobile penetration growth rate

South Sudan’s mobile penetration growth rate is also considered during 2011–2020. The results are shown in figure 20.

Figure 20: South Sudan’s mobile penetration growth rate, 2011–20



Source: MacMillan Keck.
 Note: RoC = Rate of Change

South Sudan's mobile penetration experienced poor growth levels from the inception of the conflict in 2013 through 2020. It experienced zero or negative growth virtually every year through 2018. Although South Sudan saw a return of positive growth in 2019 and 2020, the growth rates are still very low, especially when applied to such a low subscriber base.

The yellow line in figure 20 represents the average annual mobile penetration growth rate during two periods – the pre-conflict period from 2011 through 2013 and the conflict period from 2013 through 2020. The grey line in the figure represents the average but-for-the-conflict annual penetration growth rate during the conflict period.⁶¹⁴ The difference between the grey and yellow lines during the conflict period is the average annual growth rate deficit. The difference, as graphed in figure 20, is the most significant of any of the conflict countries considered. South Sudan is the only country with a negative growth rate over the conflict, despite some improvement in 2019 and 2020. However, with an actual annual growth rate of -0.4 percent and a but-for-the-conflict annual growth rate of 1.34 percent, South Sudan experienced a mammoth 129 percent deficit in annual growth during the conflict.

The steep decline in 2018 appears to be a direct result of the government's shutdown of Vivacel, which was then the country's largest mobile operator. The uptick in the two subsequent years may reflect the impact of the signing of a peace agreement in 2018.

South Sudan is the only conflict country studied which has a net negative growth rate over the conflict period. This appears to be due to existing instability and regulatory uncertainty in the new country, which continued for the duration of the conflict.

6.5 Correlating South Sudan's supply-side investment climate and teledensity

These assessments were brought together to form an overall view of the relationship between the supply-side telecom investment climate and the evolution of teledensity in South Sudan during the conflict.

South Sudan was assessed as having an internal factor investment climate rating of 1 and an external factor investment climate rating of 1. Key internal factors included (1) competing regulatory frameworks (legacy from Sudan and new in South Sudan) that undermined the network operator confidence that is necessary to attract investment; and (2) heavy reliance by the South Sudanese government on the telecom sector for fiscal revenues, which led to oppressive fiscal impositions and the shuttering of the country's largest mobile operator. The key external factors were (1) a broad arms embargo on equipment imports, technology transfer, and technical assistance; (2) lack of international aid to the telecom sector; and (3) the absence of any effective international conflict intervention to mitigate the impact of the conflict.

South Sudan's actual average annual teledensity growth rate fell as a result of the conflict, from +1.34 percent (projected) to -0.39 percent. This represents a decrease in the nominal growth rate of 1.73 percentage points. Nominally, this would appear to represent a 129 percent growth rate deficit compared with the 1.34 percent projected but-for-the-conflict teledensity growth rate. South Sudan had the lowest telecom investment climate rating and the only negative average teledensity growth rate over its conflict period.

⁶¹⁴ The differences between the actual and but-for-the-conflict average growth rates up to 2013 are different in this case only because the deterioration was considered to have begun during the tense and challenging year of 2013, during which the level of market uncertainty and consequent restrained infrastructure investment impacted growth.

7

Syrian Arab Republic

This case study assesses the impact on the telecom sector of the civil war in the Syrian Arab Republic (and related foreign incursions) from 2011 to 2020 (at which time the conflict was still ongoing).

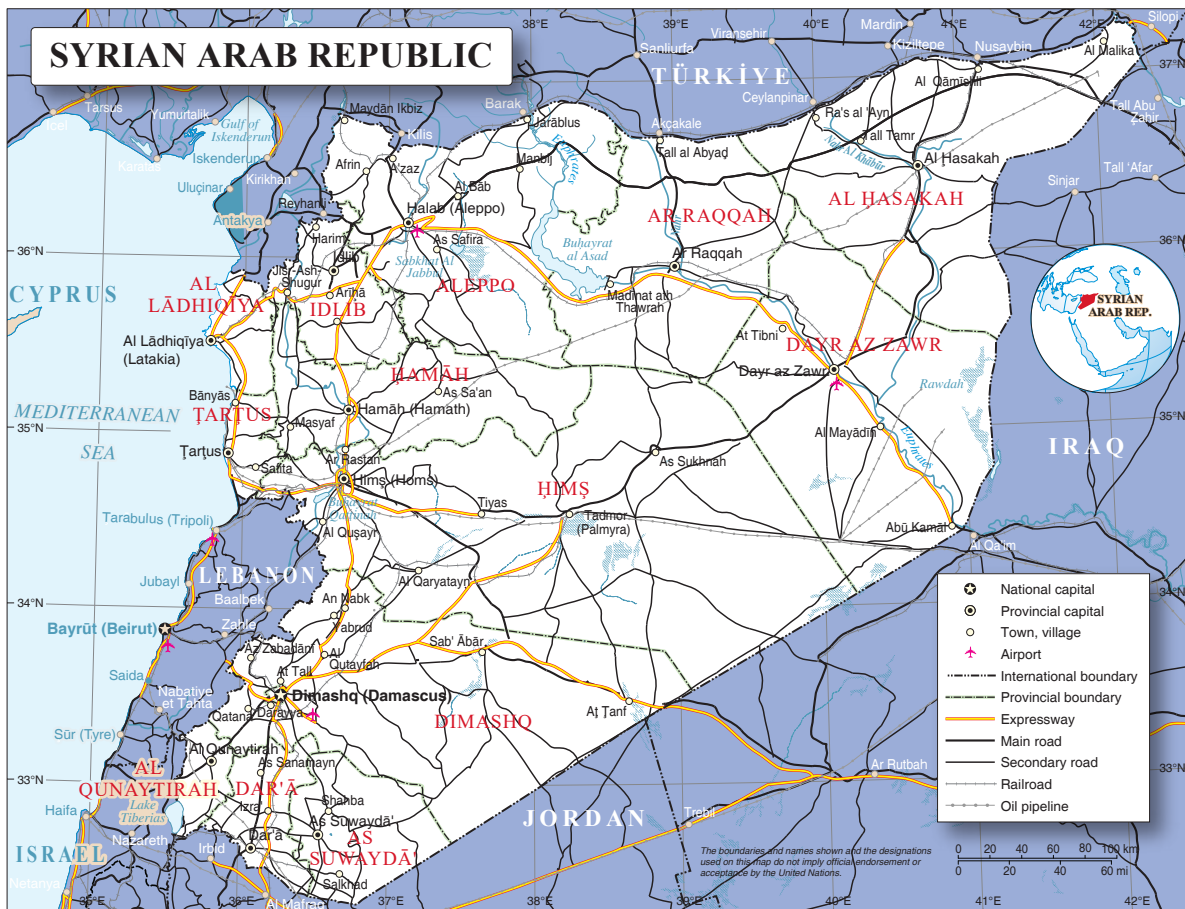
7.1 Syrian context

The following passages provide information on Syria's geography, demographics, and economy; the conflict; and the telecom sector.

Syria's geography, demographics, and economy

Syria is located in the Middle East, bordering the Mediterranean Sea between Lebanon to the southeast and Turkiye to the north (map 6). It is also bordered by Iraq to the southeast, Jordan to the south, and Israel to the southwest.

Map 6: The Syrian Arab Republic



Source: UN Geospatial > Syrian Arab Republic (April 1, 2012), <https://www.un.org/geospatial/content/syrian-arab-republic>.

Syria has a population of over 19.4 million and a land area of 185,180 square kilometers (about 71,498 square miles). The ongoing civil war has altered the distribution of the population, with an estimated over 6 million Syrian refugees living abroad according to UN data. Over 56 percent of the population lives in urban areas. Damascus, the capital city, with a population of about 2.4 million, is located at an oasis fed by the Barada River and is considered one of the world's oldest continuously inhabited cities. Aleppo has a population of about 2 million. The country's life expectancy at birth is about 73 years.⁶¹⁵

Syria's terrain is primarily semiarid and desert plateau between a narrow coastal plain and mountains in the west. About 75.8 percent of the land area is used for agriculture. The desert climate that prevails in much of Syria is characterized by hot, dry, sunny summers from June to August and mild, rainy winters from December to February along the coast. Syria periodically experiences cold weather, with snow or sleet in Damascus, which generally has mild-to-cool winters and dry, hot, cloudless summers.⁶¹⁶ Syria is subject to adverse drought conditions and in 2021 the country saw the worst drought in more than 70 years, affecting access to drinking water, electricity generation and irrigation water for millions.

Real gross domestic product (GDP) per capita was USD 2,900 in 2015. GDP composition by sector of origin in 2017 was 20 percent agriculture, 19.5 percent industry, and 60.8 percent services. Syria's primary natural resources are petroleum, phosphates, chrome and manganese ores, asphalt, iron ore, rock salt, marble, gypsum, and hydropower. Its primary commodity exports in 2019 were olive oil, cumin seeds, pistachios, tomatoes, apples, pears, spices, and pitted fruits. Syria also exports electricity, finished goods, and services. The labor force was about 3.8 million in 2017, with an estimated 6.8 million refugees living abroad during the Conflict period. Unemployment was in the region of 50 percent in 2017. Today, 59.3 percent of the population has access to electricity, over 89.7 percent has access to sanitary facilities, and 93.9 percent has access to treated drinking water.⁶¹⁷ The literacy rate in 2015 was 86.4 percent, including 91.7 percent of males and 81 percent of females.⁶¹⁸

The conflict in Syria

Syria's conflict has undergone complex transformations over time. What began with country-wide protests in 2011 has transformed into a complex and devastating armed conflict involving dozens of national and international actors. The dynamics of violence and modes of warfare similarly changed, ranging from protests and riots to active hostilities, sieges and aerial bombardments, leaving a differential mark on cities, their social make up, their infrastructure and service delivery. And while the war has affected virtually all of Syria's landscape and population in one way or another, the intensity of conflict varied across regions and over time with the center of Damascus as well as the coastal areas of Tartous and Latakia having been largely spared, while other regions experienced large scale destruction of physical infrastructure and massive displacements of the population. Apart from physical damage, the conflict had a significant fallout on social and economic life. By end 2020, the conflict was estimated to have claimed more than 600,000 lives and led many millions to flee the country, reducing the prewar population by almost 18 percent to 17.5 million.⁶¹⁹ Millions of others were displaced internally, 6.7 million of which by end 2020.⁶²⁰ Forced displacement and loss of life severely disrupted economic organization and activities, causing significant losses in virtually all economic sectors of about 60 percent relative to the pre-war GDP.⁶²¹ Meanwhile, economic decline and high inflation pushed the number of food-insecure people to 12.4 million, nearly 60 percent of the population.⁶²²

Phases of Conflict in Syria

Early 2011 - late 2011

The initial phase was determined by a cycle of protests and retaliation among activists, protesters, and the government security forces. A range of socio-economic grievances triggered by the events of the uprisings in large parts of the Arab world – widely known as the Arab Spring – were the initial drivers of mass-protests all over the country. The protests quickly escalated as disproportionate use of force to repress protests triggered opposition groups to organize and arm, causing casualties among both protesters and security forces.

615 World Bank > DataBank > World Development Indicators > Syria (2020), <https://data.worldbank.org/indicator/SPDYN.LE00.IN?locations=SY>.

616 World Bank > DataBank > World Development Indicators > Syria (2020), <https://data.worldbank.org/indicator/SPDYN.LE00.IN?locations=SY>.

617 World Bank > DataBank > World Development Indicators > Syria (2020), <https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on>.

618 IndexMundi > Historical Data Graphs per Year > Demographics: Literacy > Syria (2015), <https://www.indexmundi.com/g/g.aspx?c=sy&v=39>.

619 United Nations (2019) "World population prospects 2019" UN Department of Economic and Social Affairs Population Division, available at: <https://population.un.org/wpp/>

620 UNICEF (2021) "Whole of Syria Humanitarian Situation Report: May 2021" Available at: <https://reliefweb.int/report/syrian-arab-republic/unicef-whole-syria-humanitarian-situation-report-may-2021>

621 World Bank (2017) "The Toll of War – The Economic and Social Consequences of the Conflict in Syria", Washington DC

622 World Food Programme (2021) "Twelve million Syrians now in the grip of hunger, worn down by conflict and soaring food prices", Press Release, Available at: <https://www.wfp.org/news/twelve-million-syrians-now-grip-hunger-worn-down-conflict-and-soaring-food-prices>

2012 up to early 2014

Phase two marked the transition into a full-scale armed conflict. The protest movements turned into an armed insurgency, fueled by a series of defections of soldiers and officers from the Syrian armed forces that helped the Free Syrian Army and other militias to organize and grow in members and military power.

These armed groups gained control over parts of major cities, including Aleppo, Hama, Dara' and outskirts of Damascus (Douma), inflicting serious harm to pro-government forces which responded with aerial bombardments and shelling.

In this phase, each battleground developed its own characteristics in terms of military organization, international and social support for either party.⁶²³ In the North, many different armed groups emerged from conservative and largely impoverished citizens that benefitted from organizational and financial support networks from Turkiye with funding mainly from some Gulf countries. Resources including weapons, ammunition, and money were sporadic and fluctuating, facilitating a messy array of actors and groups that would frequently reshuffle alliances, while growing radicalization and Islamization led to infighting among rebel groups.

Mid-2014 until the beginning of 2015

Phase three witnessed the public establishment of the Islamic State group (ISg) as well as gains in influence of other Islamist groups. This growing influence of Islamist forces lastingly transformed the conflict. ISg and other hardline Islamist groups tapped on a large faction of foreign fighters that helped to establish a self-proclaimed 'caliphate' that expanded from Iraq and claimed roughly a third of Syrian territory by 2014. More moderate rebel groups had to forego influence. This changed the conflict as it gave rise to direct US-led military intervention in the North and provided opportunities for the government to close ranks and concentrate political and military resources on the fight against ISg and whatever other groups it called terrorists. Raqqa, the capital of the self-proclaimed 'caliphate', and Deir Azzour came to be the centers of conflict, with aerial bombardments by the US-led coalition, as well as rocket and mortar shelling from all sides inflicting significant damage to public infrastructure. This period equally was the most violent and claimed the record of more than 75,000 lives, more than 18,000 of which civilians.

2015 to mid-2018

Phase four marked the consolidation of the government's position amid increased Russian and Iranian involvement. In this phase, Russia significantly increased its deployment of sophisticated weapons and air defense systems as well as airpower. The government stopped its losses of territory and slowly advanced on key rebel strongholds. Opposition groups, lacking the supply and technology to defend aerial attacks, resorted themselves to indiscriminate shelling of government-held areas with mortars and grenades, causing destruction and many civilian casualties, such as in west Aleppo. By the end of 2016, the government had taken over major cities and strategic positions, most notably east Aleppo and other strategic towns in the west of the country, as well as the outskirts of Damascus by 2018. These advances were accompanied by widespread shelling and aerial bombardment that left large swaths of formerly rebel held areas destroyed.

Mid-2018 to end of 2020

The sixth phase was marked by a stalemate of force in the Idlib region while other parts of the country experienced relative stability. While shying away from direct involvement during much of the conflict, Turkiye entered the scene in 2018/2019 when Syrian government forces prepared for advancing on Idlib, the last remaining larger rebel-held area. A buffer zone agreement between Turkiye and Russia in the fall of 2018 helped to avoid an all-out attack of Syrian government forces based on a Turkish commitment to prevent the most radical forces in Idlib to gain the upper hand. However, by January 2019, radical Islamist groups became the dominating force in Idlib, which once again changed the course of the conflict. Offensives and counter-offensives left border areas of Idlib with significant damage from aerial bombardment by government forces and its allies but without significant advancements from either side. Turkiye prevented further Syrian government territorial gains by resorting to modern technology, notably weaponized drones, while the presence of US troops in Kurdish areas of the north-east prevented the resumption of open warfare in Hasakah, Raqqah, and Deir Azzour. Following a redeployment of US troops, Turkiye subsequently advanced to the Kurdish-held areas of Afrin, east of Idlib, effectively opening a new frontline between Kurdish armed groups and Turkish forces that triggered new alliances between the Syrian government and Kurdish groups.

623 International Crisis Group (2013) "Syria's Metastasising Conflicts" Middle East Report No 143

Syria's telecom sector

From its independence in 1946 until 2001, the telecommunications sector was controlled by the government.⁶²⁴ State-owned operator Syrian Telecommunications Establishment was incorporated in 1985 as a monopoly. In 2001, the government awarded two 15-year build-operate-transfer (BOT) concessions for Global System for Mobile Communications services, one to Syriatel, owned by Orascom of Egypt, and one (initially branded Spacetel and then Areeba) owned by the Lebanese company Investcom.⁶²⁵

Orascom pulled out of its Syriatel investment in 2003, leaving ownership in the hands of Rami Makhoul, President Assad's cousin.⁶²⁶ MTN purchased Areeba in 2007.⁶²⁷

Syria was undertaking a substantial telecommunications reform effort when the conflict started in 2011. The reform included passage of a new telecom law in 2011 and a competitive international tender to issue a third mobile license. The new law established a regulator and created Syrian Telecom (previously the Syrian Telecommunications Establishment) as an exclusive fixed and international operator (and future inheritor of the BOT networks).⁶²⁸

Since 2011, there have been two continuously competing mobile operators in Syria. Syriatel is majority-owned by Rami Makhoul, a cousin of President Bashar al-Assad. MTN Syria is the local subsidiary of MTN Group, but MTN Group has been looking to exit the market, in line with its corporate strategy. Following several efforts to license a third operator, a third license was awarded in 2022 to Syrian company (Wafa Telecom), which multiple news reports say is owned by, or linked to, Asma al-Assad.

At the outset of the conflict, the two mobile operators competed on a relatively even footing, Syriatel with a 55 percent market share and MTN Syria with a 45 percent share. Coverage at the time was approximately 98 percent of the population. Both operators provided 2G and 3G service.⁶²⁹ MTN Syria and Syriatel were operating at the time under BOT concessions that provided for significant revenue sharing and would eventually require them to turn over their networks to the government.⁶³⁰

The conflict affected the telecom market almost immediately in 2011. The auction for the third mobile license was quickly suspended due to growing violence.⁶³¹ Telecommunications infrastructure and services were severely affected. The government has engaged in frequent network shutdowns during the conflict, certain rebel factions have also shut down networks in areas under their control, and telecom infrastructure has been badly damaged.⁶³² The US government-imposed sanctions on Syriatel due to Rami Makhoul's ownership,⁶³³ followed quickly by the European Union.⁶³⁴

The imposition of sanctions hurt Syriatel in the market in that it impacted Syria's ability to import technological products, however, the country's 2012 profits increased by 29 percent over the prior year.⁶³⁵ However, MTN Syria's market share dropped dramatically during the crisis, with estimates now suggesting that Syriatel had a 64 percent subscriber share and a 75-80 percent revenue share in 2020. In 2013, MTN Syria reported that 25 percent of its cell sites were not operational.⁶³⁶

624 Country Profile: Syria (Federal Research Division, US Library of Congress, Washington, DC, April 2005), 15, <https://www.loc.gov/rr/frd/cs/profiles/Syria-new.pdf>.

625 See Rory Macmillan, "Telecommunications Reform in the Eastern Mediterranean: Jordan, Egypt, Lebanon and Syria" (The Middle East and North Africa Legal Yearbook, 2001), 11, <http://www.macmillanckeeck.pro/media/pdf/10.%20Telecom%20Reform%20in%20Eastern%20Mediterranean.pdf>.

626 Zina Moukheiber, "Target of Deadly Protests In Syria Has US Investments," *Forbes* (March 22, 2011), <https://www.forbes.com/sites/zinamoukheiber/2011/03/22/target-of-deadly-protests-in-syria-has-us-investments/?sh=7edd85e50ad8>.

627 "MTN Absorbs Syria's Areeba," *CommsUpdate* (TeleGeography, Washington, DC, July 2, 2007), <https://www.commsupdate.com/articles/2007/07/02/mtn-absorbs-syrias-areeba/>.

628 World Bank, "Mashreq 2.0: Digital Transformation for Inclusive Growth and Jobs" (World Bank, Washington, DC, 2018), 31, <http://documents1.worldbank.org/curated/en/246561561495359944/pdf/Mashreq-2-0-Digital-Transformation-for-Inclusive-Growth-and-Jobs.pdf>.

629 Telephone interview by Andrew Johnson with former MTN Syria Chief Operating Officer Abdallah Homs (February 5, 2021).

630 "SyriaTel, MTN Secure 20-year Operating Licences in Syria" *CommsUpdate* (TeleGeography, Washington, DC, January 9, 2015), <https://www.commsupdate.com/articles/2015/01/09/syriatel-mtn-secure-20-year-operating-licences-in-syria/>.

631 "Government Postpones Third Licence Auction amid Continuing Unrest," *CommsUpdate* (TeleGeography, Washington, DC, April 26, 2011), <https://www.commsupdate.com/articles/2011/04/26/government-postpones-third-licence-auction-amid-continuing-unrest/>.

632 Freedom House, "Freedom on the Net 2020: Syria" (Freedom House, Washington, DC, 2020), <https://freedomhouse.org/country/syria/freedom-net/2020>.

633 "US Imposes Sanctions on SyriaTel," *CommsUpdate* (TeleGeography, Washington, DC, August 11, 2011), <https://www.commsupdate.com/articles/2011/08/11/us-imposes-sanctions-on-syriatel/>.

634 "EU Sanctions Hit SyriaTel," *CommsUpdate* (TeleGeography, Washington, DC, September 26, 2011), <https://www.commsupdate.com/articles/2011/09/26/eu-sanctions-hit-syriatel/>.

635 "SyriaTel Announces Its Consolidated Financial Results for 9M12," *CommsUpdate* (TeleGeography, Washington, DC, February 22, 2013), <https://www.commsupdate.com/articles/2013/02/22/syriatel-announces-its-consolidated-financial-results-for-9m12/>.

636 "MTN Syria: Data Drives FY12 Revenues, but 25% of Cell Sites Non-Operational," *CommsUpdate* (TeleGeography, Washington, DC, March 7, 2013), <https://www.commsupdate.com/articles/2013/03/07/mtn-syria-data-drives-fy12-revenues-but-25-of-cell-sites-non-operational/>.

In 2015, the BOT concessions awarded to MTN and Syriatel were both converted into 20-year freehold licenses. While the licenses generated substantial fees for the Syrian government, they also reduced the revenue sharing obligations required under the concession arrangement.⁶³⁷ Syriatel's revenues increased 37 percent in 2016, with earnings per share almost doubling.⁶³⁸

The sector has come under increasing fiscal and regulatory pressure. This fiscal pressure has coincided with the loss of government revenue shares due to the transition of the BOT concessions into licenses. In 2020, a Syrian Court placed Syriatel under judicial custody for failure to pay back taxes. Syriatel's controlling shareholder, Rami Makhlouf, publicly disputed the decision.⁶³⁹ On February 25, 2021, a Syrian court placed MTN Syria under a "judicial guardianship" and awarded the guardianship to Saudi-owned minority MTN Syria shareholder Teleinvest. At the time of the guardianship, Teleinvest was negotiating with MTN Group to purchase MTN's majority share of MTN Syria. MTN Group has formally appealed the decision and disputes the government's action.⁶⁴⁰

Syriatel exited its judicial guardianship in July 2021 under an arrangement providing for financial guarantees with respect to alleged back tax payments and appointment of a new board.⁶⁴¹ MTN has confirmed its intention to exit the Syrian market, describing the operating conditions in Syria as "intolerable" and indicating an intention to seek international legal redress.⁶⁴² With the two recent judicial guardianships over both private mobile operators and MTN's desire to exit the market, the future of the telecom sector in Syria is in jeopardy.

7.2 Assessment of internal Syrian telecom investment climate factors

Five internal factors during the conflict that impacted the climate for telecom investment were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

Syria: Market open to entry?

Syria has competing private sector operators and has intermittently sought to introduce a third operator. However, attempts to attract a third operator have been unsuccessful, and in 2017, as part of an effort to improve economic ties with the Islamic Republic of Iran, it was announced that an Iranian consortium would be awarded a third mobile license in Syria, with a minority stake to be held by the state-owned enterprise (SOE) Syrian Telecom.⁶⁴³ Syria was assigned an *uncertain* score for openness to market entry.

Syria: Ease of private investment?

Although Syria adopted a modern telecom law in 2011 that provides a legal basis for private investment, the sector faces serious challenges due to the damage to telecom infrastructure, political instability, and Syrian Telecom's monopoly on fixed networks and the international gateway.⁶⁴⁴ Although private internet service providers can legally be licensed, the government exercises heavy security-related controls over communications network ownership and access.

"SyriaTel, MTN Secure 20-Year Operating Licences in Syria," CommsUpdate (TeleGeography, Washington, DC, January 9, 2015), <https://www.commsupdate.com/articles/2015/01/09/syriatel-mtn-secure-20-year-operating-licences-in-syria/>.

638 "SyriaTel Reports 37% Increase in Revenues in FY2016," CommsUpdate (TeleGeography, Washington, DC, May 2, 2017), <https://www.commsupdate.com/articles/2017/05/02/syriatel-reports-37-increase-in-revenues-in-fy2016/>.

639 "Court Orders SyriaTel to Be Placed under Judicial Custody" CommsUpdate (TeleGeography, Washington, DC, June 9, 2020), <https://www.commsupdate.com/articles/2020/06/09/court-orders-syriatel-to-be-placed-under-judicial-custody/>.

640 "MTN Group Responds to Syrian Court's MTN Syria Ruling" CommsUpdate (TeleGeography, Washington, DC, March 1, 2021), <https://www.commsupdate.com/articles/2021/03/01/mtn-group-responds-to-syrian-courts-mtn-syria-ruling/>; "South African Mobile Operator MTN Eyes \$65 Million Deal for Syrian Business," Reuters (February 28, 2021), <https://www.reuters.com/article/uk-mtn-group-syria/south-african-mobile-operator-mtn-eyes-65-million-deal-for-syrian-business-idUSKCN2AS0BJ>.

641 "SyriaTel Exits Judicial Custody under New Management," CommsUpdate (TeleGeography, Washington, DC, July 27, 2021), <https://www.commsupdate.com/articles/2021/07/27/syriatel-exits-judicial-custody-under-new-management/>.

642 "MTN Confirms Plans to Exit Syria after Losing Control of Unit," CommsUpdate (TeleGeography, Washington, DC, August 13, 2021), <https://www.commsupdate.com/articles/2021/08/13/mtn-confirms-plans-to-exit-syria-after-losing-control-of-unit/>.

643 "Iranian Consortium to Be Awarded a Mobile Licence in Syria" CommsUpdate (TeleGeography, Washington, DC, January 18, 2017), <https://www.commsupdate.com/articles/2017/01/18/iranian-consortium-to-be-awarded-a-mobile-licence-in-syria/>.

644 World Bank, "Mashreq 2.0: Digital Transformation for Inclusive Growth and Jobs" (World Bank, Washington, DC, 2018), 31, <https://documents1.worldbank.org/curated/en/246561561495359944/pdf/Mashreq-2-0-Digital-Transformation-for-Inclusive-Growth-and-Jobs.pdf>.

In 2015, the BOT concessions held by MTN Syria and Syriatel were converted into 20-year freehold licenses.⁶⁴⁵ However, in 2017, as part of an effort to improve economic ties with the Islamic Republic of Iran, it appeared that an Iranian consortium would be awarded a third mobile license in Syria, with a minority stake to be held by the SOE Syrian Telecom.⁶⁴⁶ Nothing appears to have come of this proposal. It is also not clear whether the judicial guardianships of MTN Syria and Syriatel are justified.

Syria was given an *uncertain* score for ease of private investment.

Syria: Spectrum needs met?

There do not appear to be any restrictions on technology, and MTN Syria reported satisfaction with its ability to obtain spectrum.⁶⁴⁷ Both mobile operators announced 4G networks in 2017. Syriatel launched 4G in 2017 and MTN Syria launched 4G in 2018.⁶⁴⁸

Syria was assigned a *favorable* score for spectrum needs.

Syria: Level playing field?

The largest mobile operator, Syriatel, is majority-owned by President Assad's cousin. Prior to the dispute between Syriatel and the government earlier in 2021, there was always a perception that Syriatel was favored. In 2017, it appeared possible that a third license would be awarded for diplomatic purposes with minority government ownership. Both operators are currently functioning under judicial guardianships.

Syria was assigned an *unfavorable* rating for level playing field.

Syria: Fiscal reasonableness?

The nominal tax rate for corporate income tax in Syria has been 22 percent since the passage of the Income Tax Law of 2003, Law No. 24/2003.⁶⁴⁹ Syria also imposes a relatively high 10 percent import duty applicable to handsets, although this tax was not targeted specifically to mobile phones.⁶⁵⁰ Beginning in 2016, Syria began imposing mobile-specific taxes, including a fee for registering a phone on a mobile network and a fee for mobile operators to authorize a mobile phone.⁶⁵¹ In addition to being regressive, these taxes are apparently designed to be revenue positive and have led to an increase in smuggling, indicating a negative fiscal sector impact.⁶⁵²

However, the heart of fiscal impositions on telecom operators in Syria has come in the form of revenue shares in exchange for operating concessions. When the sector was opened to private investment, Syria issued 15-year BOT concessions to Syriatel and MTN Syria in 2001 instead of issuing typical mobile licenses. The concessions provided for revenue shares of 30 percent for the first three years, 40 percent for years four and five, and then 50-60 percent for the remaining 10 years. In 2010, the concessions were converted to licenses and the revenue share was decreased to 50 percent in 2015, 30 percent in 2016 and 2017, and 20 percent from 2018 through 2034. The reduction in revenue share resulted in a substantial loss for the Syrian Treasury. As a result, in 2018, the government began pressuring MTN Syria and Syriatel to pay large amounts of "back taxes" that the operators interpreted as an after-the-fact attempt to claw back fiscal revenues.⁶⁵³

645 "SyriaTel, MTN Secure 20-Year Operating Licences in Syria," CommsUpdate (TeleGeography, Washington, DC, January 9, 2015), <https://www.commsupdate.com/articles/2015/01/09/syriatel-mtn-secure-20-year-operating-licences-in-syria/>.

646 "Iranian Consortium to Be Awarded a Mobile Licence in Syria," CommsUpdate (TeleGeography, Washington, DC, January 18, 2017), <https://www.commsupdate.com/articles/2017/01/18/iranian-consortium-to-be-awarded-a-mobile-licence-in-syria/>.

647 Telephone interview by Andrew Johnson with former MTN Syria Chief Operating Officer Abdallah Homs (February 5, 2021).

648 "MTN Launches LTE in Syria," CommsUpdate (TeleGeography, Washington, DC, December 3, 2018), <https://www.commsupdate.com/articles/2018/12/03/mtn-launches-lte-in-syria/>.

649 See Syrian Law Journal > Taxation Law > Income Tax Law (2021), <http://www.syria.law/index.php/main-legislation/taxation-law/>. Deloitte, International Tax Syria Highlights (Deloitte, London, January 2019), <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dtlf-tax-syriahighlights-2019.pdf?nc=1>.

650 Deloitte, Global Mobile Tax Review 2011 at 33 (GSMA, London, 2011), <https://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gsmaglobaltax-reviewnovember2011.pdf>.

651 See Murad Abduljalil, Authorization of Mobile Devices in Syria Increases Government and Company Profits (Enab Baladi, Daraya, Syria, November 13, 2016), <https://english.enabbaladi.net/archives/2016/11/authorization-mobile-devices-syria-increases-government-company-profits/>.

652 See, for example, "Syria Bans Import of Mobile Phones," Middle East Monitor (March 24, 2021), <https://www.middleeastmonitor.com/20210324-syria-bans-import-of-mobile-phones/>; "Syria Halts Cellphone Imports to Shore Up Forex Reserves amid US Sanctions," Alarabiya News (March 24, 2021), <https://english.alarabiya.net/business/technology/2021/03/24/Syria-crisis-Syria-halts-cellphone-imports-to-shore-up-forex-reserves-amid-US-sanctions>.

653 See Rohan Advani, "As Spotlight Stays on Makhlof, Syrian Telecoms Industry Undergoes Significant Changes" (Syria Direct, June 1, 2020), <https://syriadirect.org/as-spotlight-stays-on-makhlof-syrian-telecoms-industry-undergoes-significant-changes/>.

In June 2020, a Syrian court placed Syriatel under judicial custody for failure to pay USD 1 billion in taxes.⁶⁵⁴ In February 2021, MTN Syria was similarly placed under judicial guardianship.⁶⁵⁵ After Syriatel was shut down by the tax authorities, the government increased penalties on illegal telecom services, a move intended to ensure that the government could collect sector revenues.⁶⁵⁶

Syria was assigned an *unfavorable* score for fiscal reasonableness due to the high revenue shares during much of the conflict period and apparently arbitrary and punitive enforcement of fiscal policies, as summarized in table 20.

Table 20: Syrian Arab Republic: Fiscal reasonableness determination

SYRIAN ARAB REPUBLIC: FISCAL REASONABLENESS, 2001-2020			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
22% corporate income tax 10% import duty	Separate charge to register mobile phone on network and authorize; revenue raising	Price regulation High revenue share – 60% 2011–14, 50% 2015, 30% 2016–17, and 20% 2018 Surprise tax assessments	Recent seizure of mobile companies for tax reasons after the government lost money from revenue sharing
Syrian Arab Republic overall rating: Unfavorable			

Source: World Bank.

Syria: Summary of key findings across all the internal factors

Table 21 summarizes the scoring of internal factors likely to have had an impact on the development of the telecom sector in Syria and the key relevant facts that form the basis for each score.

Table 21: Syrian Arab Republic: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Market open to entry	1	2011, licensing of third mobile operator abandoned 2021, third mobile license awarded to Iranian firm with minority Syrian Arab Republic state ownership
Ease of private investment	1	2011, modern telecom law adopted Difficult security situation
Spectrum needs met	2	No apparent restrictions on technology Both mobile operators announced 4G networks in 2017
Level playing field	0	2020, MTN announced plans to exit the Syrian Arab Republic 2021, control of MTN awarded to state shareholder 2020, control of Syriatel awarded to state shareholder
Fiscal reasonableness	0	Telecom law awarded Syrian Telecom 20-year concession as fixed and international operator Build-operate-transfer concessions required large revenue shares State seized control of both mobile operators
All	4	

Source: MacMillan Keck.

654 "Court Orders SyriaTel to Be Placed under Judicial Custody," CommsUpdate (TeleGeography, Washington, DC, June 1, 2020), <https://www.commsupdate.com/articles/2020/06/09/court-orders-syriatel-to-be-placed-under-judicial-custody/>.

655 "MTN Group Responds to Syrian Court's MTN Syria Ruling," CommsUpdate (TeleGeography, Washington, DC, March 1, 2021), <https://www.commsupdate.com/articles/2021/03/01/mtn-group-responds-to-syrian-courts-mtn-syria-ruling/>.

656 "Govt Increases Penalties for Evading Fees for Telecom Services," CommsUpdate (TeleGeography, Washington, DC, April 30, 2021), <https://www.commsupdate.com/articles/2021/04/30/govt-increases-penalties-for-evading-fees-for-telecom-services/>.

7.3 Assessment of external Syrian telecom investment climate factors

Five external factors during the conflict that impacted the climate for telecom investment in Syria were assessed: (1) military or paramilitary interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings across all the external factors.

Syria: Military or paramilitary interference?

Although a significant part of the Syrian territory has remained under the control of the Assad regime, large parts of the territory have been active conflict zones for lengthy periods since 2011. Non-state actors and foreign military actors have been accused of blocking access to food, water, and health services as a method of war.⁶⁵⁷ Civilian supply chains that are essential to the telecom sector have faced *de facto* blockades of land and air travel.⁶⁵⁸ Non-state rebel groups have shut down networks in areas under their control, and telecom infrastructure has been badly damaged or destroyed.⁶⁵⁹ Areas of Syria under Islamic State control often did not have any access to commercial mobile networks. The Islamic State would block access to mobile networks due to its concerns about communications with coalition forces.⁶⁶⁰

Syria was assigned an *uncertain* rating for foreign military or paramilitary interference.

Syria: International sanctions?

Syria has been subject to various broad international sanctions and export controls during the conflict. The United States imposed a ban on the export of US-origin goods (including through other countries) and equipment that use more than de minimis US-origin parts. This is such a high bar that even telecom equipment manufactured elsewhere and sold through a third country could potentially be subject to US export controls if it uses a small spare part manufactured in the United States.

The export controls also extended to export of services to Syria, such as information technology services, and providing technological support or engineering services to the Syrian government.⁶⁶¹ Similarly, the European Union banned the export of certain goods to Syria, including equipment and software used to monitor telecommunications networks.⁶⁶² Syria has been subject to an added layer of sanctions compared with the other countries in this study. The Arab League cut off transactions with the Syrian Central Bank and stopped Arab funding of projects in Syria.⁶⁶³

Trade with China has continued during the conflict, however. After US sanctions were placed on Syriatel and it was blocked from using US data centers, the majority of Syria's data traffic was rerouted through a provider based in Hong Kong SAR, China.⁶⁶⁴

Syria was assigned an *uncertain* rating for international sanctions, balancing the existence of broad sanctions with Syria's apparent ability to bypass those sanctions.

Syria: Travel restrictions?

Syria's airspace was a no-fly zone for commercial aircraft and international air carriers suspended scheduled flights into Syria for a substantial part for the 2011–20 conflict period. Most airlines halted flights to Damascus and Aleppo in 2012. Flights were able to resume in 2019 as military operations receded, but many carriers delayed the resumption of flights.

Although Syria was not subject to any broad security-related travel restrictions during the conflict, except a travel ban imposed on certain individuals associated with the Assad regime, the Islamic State in Iraq and the Levant (ISIL), and al-Qaeda, Syria became a crossroads for conflict between and among foreign states and other foreign state actors and combatants. Syria was regarded as dangerous and most governments strongly advised their citizens against nonessential travel to Syria.

Syria received an *unfavorable* rating for travel restrictions.

657 "Syria: The Story of the Conflict." BBC News (March 11, 2016), www.bbc.com/news/world-middle-east-26116868.

658 Ibid.

659 Freedom House, "Freedom on the Net 2020: Syria" (Freedom House, Washington, DC, 2020), <https://freedomhouse.org/country/syria/freedom-net/2020>.

660 "Cell Phone Networks: Control Towers Engulfing Syrians" Enab Baladi (December 14, 2018), <https://english.enabbaladi.net/archives/2018/12/cell-phone-networks-control-towers-engulfing-syrians/>. See also "ISIS Blocks Cell Phone Networks in Mosul, Residents Say," Haaretz (November 27, 2014), <https://www.haaretz.com/isis-blocks-mosul-phone-networks-1.5336885>.

661 "U.S. and European Sanctions on Syria" (Carter Center, Atlanta, GA, September 2020), 7–9, https://www.cartercenter.org/resources/pdfs/peace/conflict_resolution/syria-conflict/us-and-european-sanctions-on-syria-091620.pdf.

662 See "U.S. and European Sanctions on Syria" (Carter Center, Atlanta, GA, September 2020), 10–12, https://www.cartercenter.org/resources/pdfs/peace/conflict_resolution/syria-conflict/us-and-european-sanctions-on-syria-091620.pdf.

663 "Arab League: Carry Out, Monitor Syria Sanctions," Human Rights Watch Blog (March 29, 2012), <https://www.hrw.org/news/2012/03/29/arab-league-carry-out-monitor-syria-sanctions>.

664 Sean Gallagher, "Syria Sidesteps Sanctions by Turning to China for Internet Bandwidth," Ars Technica (August 21, 2012), <https://arstechnica.com/tech-policy/2012/08/us-sanctions-give-china-an-opportunity-to-supply-bandwidth-to-syrian-isps/>.

Syria: International aid for telecommunications?

With the exception of assistance to ensure connectivity for aid organizations, there has been little official donor assistance for the telecommunications sector in Syria, and the assistance has targeted security concerns and humanitarian relief. Syria was assigned an *unfavorable* rating for international aid for telecommunications.

Syria: International security intervention?

Security interventions from the international community in Syria during the conflict have primarily involved different countries providing support to rival groups. These interventions have therefore intended to reinforce the hostilities rather than create a more secure environment in the country.

Syria was assigned an *unfavorable* rating for international security interventions.

Syria: Summary of key findings across all the external factors

Table 22 summarizes the scoring of external factors that are likely to have had an impact on the development of the telecom sector in Syria and the key relevant facts that form the basis for each score.

Table 22: Syrian Arab Republic: Assessment of external factors impacting the telecom investment climate

External factor assessed	Score	Key relevant facts
Military interference	1	Non-state paramilitary and foreign military actors have blocked movements of goods, destroyed infrastructure, and blocked service in some areas of the Syrian Arab Republic Assad regime has protected operators and their infrastructure in other areas of Syria
International sanctions	1	Broad international bans on goods, services, and technology
Travel restrictions	0	Commercial air travel suspended from 2012 through 2019 Serious caution in entering Syria
International aid for telecommunications	0	No telecom-related aid
International security intervention	0	Competing security interventions counterproductive
All	2	

Source: MacMillan Keck.

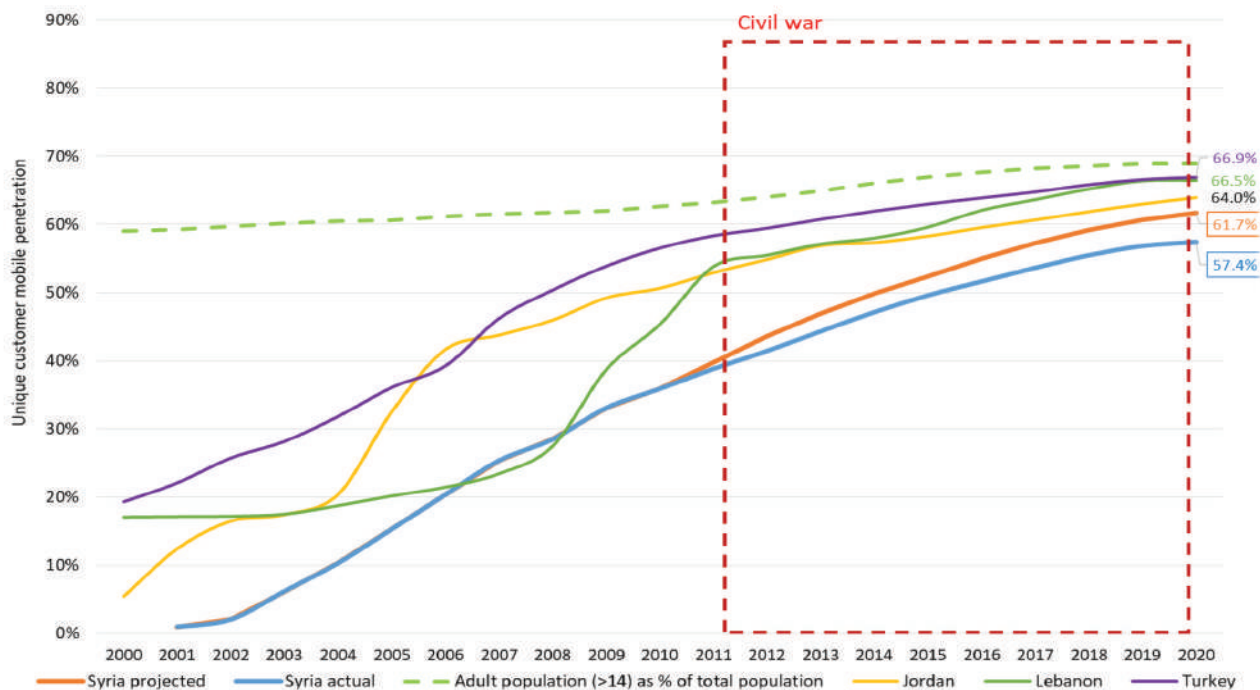
7.4 Syria's projected and actual teledensity evolution

The following passages discuss Syria's teledensity evolution and the impact of the conflict.

Syria's unique subscriber mobile penetration

Syria's mobile penetration is considered from 2000 through 2020, including the Syrian civil war from 2011 through 2020 (when it was still ongoing). The results are shown in figure 21. The adult-age (15+) population (green dashed line in the figure) serves as an invisible upper bound on potential unique customer mobile penetration. The levels of mobile penetration for Jordan, Lebanon, and Turkiye are also shown as benchmarks as a regional peer group.

Figure 21: Syrian Arab Republic's unique subscriber mobile penetration, 2000–20



Source: MacMillan Keck.

Syria's mobile penetration was *de minimis* in 2000, whereas neighboring countries Turkiye and Lebanon had penetration levels nearing 20 percent and Jordan had a penetration of about 5 percent. Syria's mobile penetration began growing in 2002 and until 2011 Syria added subscribers at an average growth rate similar to Jordan, Lebanon, and Turkiye (average peer group growth), but on a more consistent basis.

Since the Syrian conflict began in 2011, subscriber growth in the peer countries has slowed, while Syria's actual mobile penetration continued to grow at a faster pace, closing the gap to some degree by 2020. Under the but-for-the-conflict projections, Syria's mobile penetration would have grown even faster. Although it would have still been behind the peer group, its mobile penetration would have significantly closed the gap, nearly catching up with Jordan by 2020.

Syria's mobile operators appear to have performed much better during the conflict than may have otherwise been the case. Syria had adopted a modern telecom law in 2011, just prior to conflict, with a promise to the European Union to liberalize the market. However, the licensing of a third mobile operator was abandoned in 2011 after the onset of the conflict.

The government, which held a minority stake in both Syriatel and MTN Syria, has seized control of both companies over the last year, and the impact of these moves on market performance is not yet clear. Reports indicate that a third mobile license may recently have been issued to an Iranian firm with minority Syrian state ownership.

Unique subscriber penetration is at 57.4 percent against a total subscriber identity module penetration of 115 percent (a 50 percent differential, likely indicative of high off-net premiums). The actual growth profile shows a retarded growth rate between 2011 and 2020, although a similar penetration trend existed in the three peer countries from 2011. Syria had a fairly stable regulatory foundation in 2011, with competition in the market of two fairly strong operators.

MTN Syria introduced 3G services in 2010, in a similar timeframe to its neighbors (Turkiye, 2009; Jordan, 2010; and Lebanon, 2011) but only introduced 4G in 2017, generally two or three years after its regional peers, illustrating the impact of the conflict in Syria.

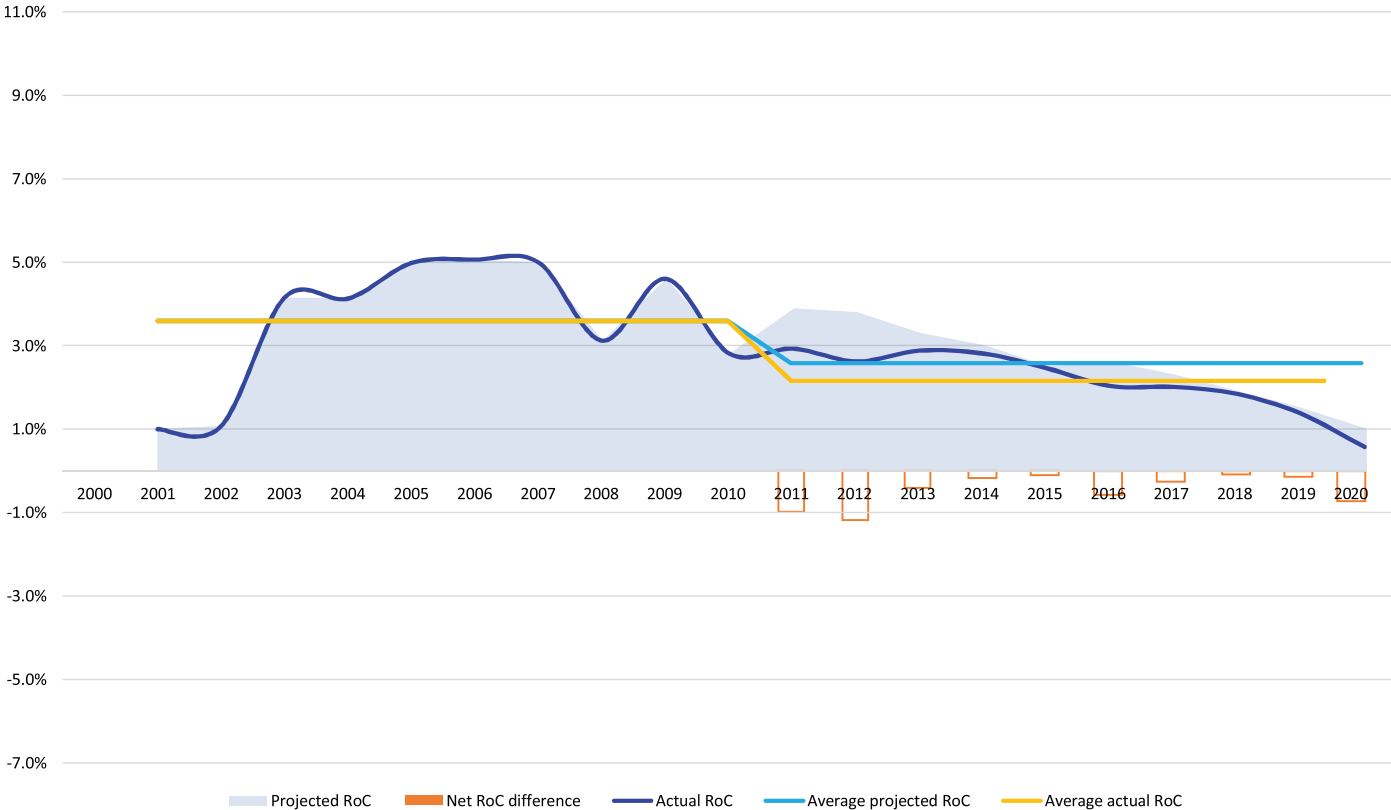
Despite steady growth in penetration, Syria (actual penetration at 57.4 percent) remains well below the notional limit of the adult population (69 percent). Syria’s peers show similar relationships between unique user mobile penetration and adult population (15+): Lebanon (66.5 percent versus 74 percent) and Turkiye (66.9 percent versus 76 percent), with Jordan (64 percent versus 66 percent) seemingly approaching this asymptote.

The projected penetration presents a reasonable but-for-the-conflict estimate of potential penetration levels, which reaches 61.7 percent in 2020 (still 5 percent behind its peer average but this was 30 percent below in 2011). With a 2020 deficit of 7 percent between the projected and actual levels of penetration, the projection remains conservative in its view of potential market development in Syria. If the conflict had not occurred, it is probable that a third mobile operator would have been introduced by 2013, which would have spurred growth and competition in the market – and likely mobile broadband adoption would have been accelerated, including the earlier adoption of 4G service.

Syria’s mobile penetration growth rate

Syria’s mobile penetration growth rate (which is the rate of change in penetration from one year to the next) is also considered for 2000–20. The results are shown in figure 22.

Figure 22: Syrian Arab Republic’s mobile penetration growth rate, 2000–20



Source: MacMillan Keck.

Note: RoC = Rate of Change.

The yellow line in figure 22 represents the average annual mobile penetration growth rate during two periods – the pre-conflict period from 2001 through 2011 and the conflict period from 2011 through 2020. The grey line in the figure represents the average but-for-the-conflict annual penetration growth rate during the conflict period. The difference between the grey and yellow lines during the conflict period is the average annual growth rate deficit. The difference, as graphed in figure 22, is significant in its profile; that is, growth would have most likely occurred earlier and been sustained longer, as the red deficit bars in figure 22 show. Syria has been less affected by the conflict than would have been expected, considering the extremely difficult operating environment, which is perhaps an indication of the persistence of the two operators in maintaining networks and finding some, albeit reduced, growth. However, with an actual average annual growth rate of 2.15 percent and a but-for-the-conflict average annual growth rate of 2.58 percent, Syria experienced a 16.5 percent deficit in annual growth during the conflict.

Syria experienced positive subscriber growth rates throughout the civil war from 2011 through 2020, although the year-on-year growth rate gradually declined from about 3 percent in 2011 to less than 1 percent in 2020. In light of the government's recent takeover of Syriatel and MTN Syria, and the reported licensing of a mobile operator controlled by the Islamic Republic of Iran, it remains to be seen whether this will have a positive effect on mobile teledensity growth.

7.5 Correlating Syria's supply-side investment climate and teledensity

The assessment of Syria can inform an overall view of the relationship between the supply-side telecom investment climate and the evolution of teledensity in Syria during the conflict.

Syria was assessed as having an internal factor investment climate rating of 5 and an external factor investment climate rating of 3. Key internal factors included (1) state interference with investor ownership and control of network operators, and (2) heavy state reliance on the telecom sector for fiscal revenues. The key external factors were (1) heavy military operations that from time to time had the practical impact of a blockade and paramilitary operations by the Islamic State and other armed groups and foreign combatants, (2) strict economic sanctions, (3) lack of international aid to the telecom sector, and (4) the absence of any effective international conflict intervention to mitigate the impact of the conflict (with competing international interventions raising risk levels rather than mitigating them).

Syria's actual annual teledensity growth rate deficit during the conflict period was 16.5 percent, which is the worst deficit among the conflict countries studied except South Sudan and the Republic of Yemen.

8

Republic of Yemen

This case study assesses the impact on the telecom sector of the civil war in the Republic of Yemen from 2014 to 2020 (at which time, it was still continuing).

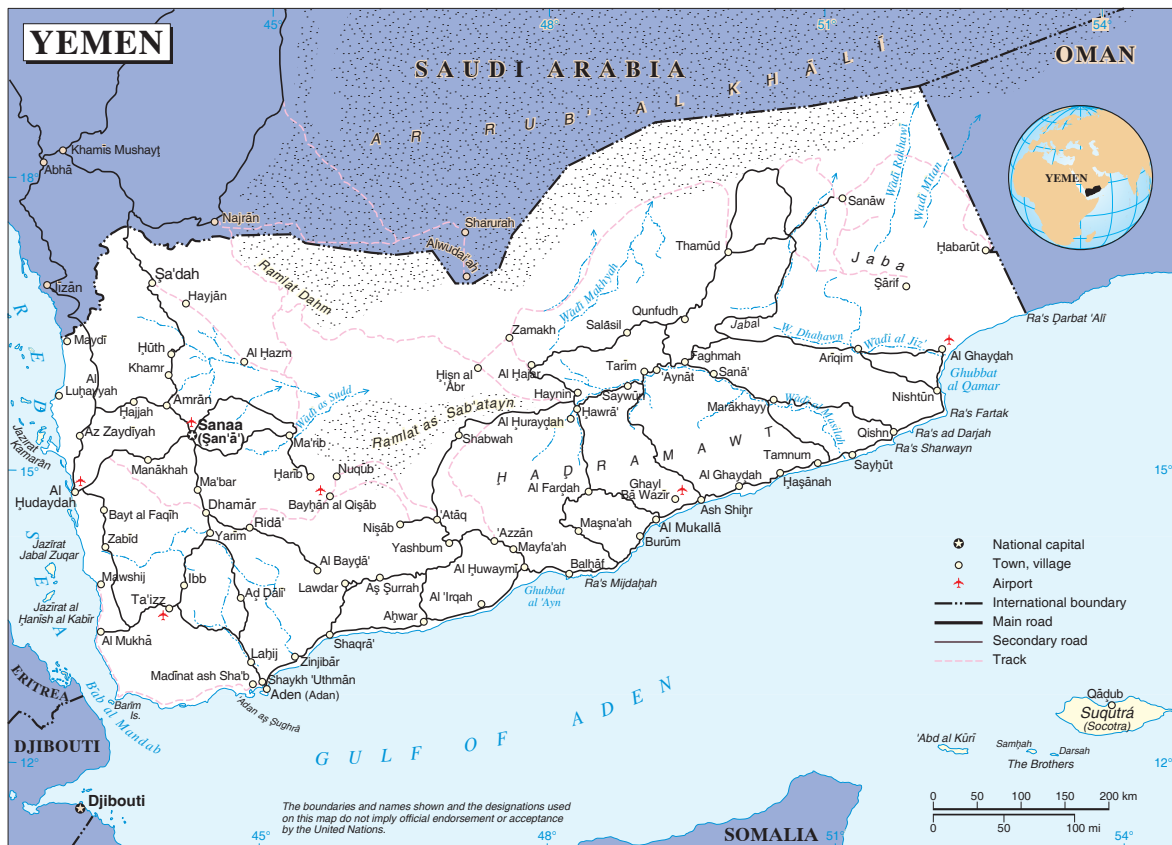
8.1 Republic of Yemen context

The following passages provide information on the Republic of Yemen's geography, demographics, and economy; the conflict; and the telecom sector.

The Republic of Yemen's geography, demographics, and economy

The Republic of Yemen is located at the southern tip of the Arabian Peninsula (map 7). The country has 1,906 kilometers of shoreline to the west along the Red Sea and to the south along the Gulf of Aden and the Arabian Sea. The Republic of Yemen is bordered by Oman on the east and Saudi Arabia on the north, with Eritrea, Djibouti, and Somalia in close proximity across the Red Sea and the Gulf of Aden.

Map 7: Republic of Yemen



Source: UN Geospatial > Republic of Yemen (January 1, 2004), <https://www.un.org/geospatial/content/Republic of Yemen>.

The Republic of Yemen has a population of more than 30 million and a land area of 527,970 square kilometers (about 203,850 square miles). The vast majority of the Republic of Yemen's population lives in the Sarawat Mountains, a mountain range along the western coast of the Arabian Peninsula that runs parallel to the Red Sea from northwest Saudi Arabia down to the Gulf of Aden in the Republic of Yemen. About 37.9 percent of the population lives in urban areas. Sana'a, the official capital, which is controlled by the de facto government (DFG) and has a population of more than 3 million, is located in the northern part of the Asir Mountains. Aden, a port city on the Gulf of Aden that currently serves as the seat for the internationally recognized government (IRG), has a population of more than 1 million. Life expectancy at birth is about 66 years.⁶⁶⁵ The Republic of Yemen's ethnicity is predominantly Arab. Tribalism still embraces 70-80 percent of the population through a multi-layered structure of tribes, tribal traditions, and tribal law that dominate political, economic, and cultural activity. Tribal leaders serve as intermediaries between local communities and the state, and tribesmen serve in common defense of their tribe.⁶⁶⁶ The main languages are Arabic (official, near universal), English (wide use in the south), and Mahri (in the east near Oman).

The Republic of Yemen's terrain is varied. The area in the west along the Red Sea comprises a narrow coastal plain backed by flat-topped hills and rugged mountains (where a significant majority of the population lives). To the east of the mountains are dissected upland desert plains, which in the center of the country slope into the desert interior of the Arabian Peninsula. About 44.3 percent of the land area is used for agriculture. The remainder of the land area comprises urbanized areas in the west and largely uninhabited desert in the east. The Republic of Yemen's climate varies with its terrain. The western coastal plain is mostly hot and humid desert. The western mountains are temperate most of the year but affected by seasonal monsoons. The desert to the east is extraordinarily hot, dry, and harsh.

Real gross domestic product (GDP) per capita was USD 2,500 in 2017. GDP composition by sector of origin in 2017 was 20.3 percent agriculture, 11.8 percent industry, and 67.9 percent services.⁶⁶⁷ The Republic of Yemen's primary natural resources are petroleum, fish, rock salt, marble, small deposits of coal, gold, lead, nickel, copper, and fertile soil in the west. Its primary commodity exports in 2019 were crude petroleum, gold, fish, industrial chemical liquids, and scrap iron. The labor force was about 6.95 million in 2020.⁶⁶⁸ Unemployment was in the region of 27 percent in 2014. In 2020, about 54 percent of the population lived below the poverty line.⁶⁶⁹ In 2019, 72.8 percent of the population had access to electricity, 53.6 percent had access to sanitary facilities, and 59.7 percent had access to treated drinking water.⁶⁷⁰ The literacy rate is 70.1 percent, including 85.1 percent of males and 55 percent of females.⁶⁷¹

The conflict in the Republic of Yemen

Yemen's current conflict is the result of complex layers of competing tensions that have been simmering for decades. In the far North of the country, a revivalist movement of Zaydism (branch of Shia Islam) emerged in the 1990s, giving birth to the current Houthi movement. The Houthis' increasing opposition toward the government led to six waves of armed conflict (the Sa'ada Wars) from 2004 to 2010, which ended with a ceasefire agreement. The 2011 Arab Spring in Yemen was driven chiefly by high youth unemployment, the marked deterioration of socioeconomic conditions, and the autocratic and kleptocratic nature of the aging Saleh regime.⁶⁷² Following a mediation process, under the auspices of the Gulf Cooperation Council, President Ali Abdullah Saleh resigned and his vice president, Abdrabbuh Hadi, took over in March 2012. However, this political transition failed to address grievances. The ensuing National Dialogue Conference led to strong opposition, particularly in the form of a federal state, prompting the Houthis to collaborate with the former president and the largest faction of his General People's Congress party.

665 World Bank > DataBank > World Development Indicators > Yemen (2020), <https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on>.

666 ACAPS, Tribes in Yemen: An Introduction to the Tribal System (ACAPS, Geneva, August 2020), https://www.acaps.org/sites/acaps/files/products/files/20200813_acaps_thematic_report_tribes_in_yemen0.pdf.

667 IndexMundi > Factbook > Countries > Republic of Yemen > Economy > Yemen GDP – Composition by Sector (2017), https://www.indexmundi.com/yemen/gdp_composition_by_sector.html.

668 World Bank > DataBank > World Development Indicators > Yemen (2020), <https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on>.

669 IndexMundi > Historical Data Graphs per Year > Economy: Population below Poverty Line > Yemen (2020), <https://www.indexmundi.com/g/g.aspx?v=69&c=ym&l=en>.

670 World Bank > DataBank > World Development Indicators > Yemen (2020), <https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on>.

671 IndexMundi > Factbook > Countries > Yemen > Demographics > Literacy (2015), <https://www.indexmundi.com/yemen/literacy.html>.

672 Lackner, Helen. 2016. Yemen's 'Peaceful' Transition from Autocracy: Could It Have Succeeded? Stockholm: International Institute for Democracy and Electoral Assistance.

In September 2014, they took control of the capital as well as government institutions, and in February 2015 they advanced from the North into the center and southern provinces, including Aden. A Saudi-led coalition launched Operation Decisive Storm and intervened to bolster the IRG against the Houthi forces, which was successful in the central and southern provinces. This was the prelude to what is now a long-standing armed conflict over territorial control, with multiple active front lines.

Since late 2015, Yemen has been divided into two separately ruled territories, with the Houthis in control of Sanaa and most of the heavily populated North Yemen. The IRG recreated national-level state institutions under its authority but has a weak foundation; it has limited legitimacy and has lost further popular support due to increased fragmentation and separatist aspirations in the South. The IRG shares power based on a fragile agreement signed in Riyadh in late 2019 with a UAE-backed secessionist movement, the Southern Transitional Council (STC), and has been composed of several political parties with conflicting interests. The STC took control of Aden and a significant part of the South while the IRG continues to control or at least have support in the east of the country, three central Yemen governorates, and along the Red Sea Coast up to Hays and the city of Taiz. In addition, sectarian and tribal divisions affect local power dynamics and tend to side with either the Houthis or the IRG, depending on the positioning of their leaders. Local conflicts occur with little warning and can quickly escalate to subnational or even national levels.

Fighting has devastated the Republic of Yemen's economy, destroyed critical infrastructure, and led to food insecurity verging on famine. In early 2021, the United Nations (UN) estimated that 20.7 million people – 66% of the population – needed humanitarian assistance, with 12.1 million estimated to be in acute need.⁶⁷³

Republic of Yemen's telecom sector

Before the conflict, the Republic of Yemen had four licensed mobile operators: Yemen Mobile, MTN Yemen,⁶⁷⁴ SabaFon, and Y-Telecom. The Republic of Yemen now only has three active mobile operators, after Y-Telecom, which only served the Sana'a metropolitan area and was already struggling before the conflict, went bankrupt in 2020 and abandoned its equipment. The largest, Yemen Mobile, is majority state-owned. Sabafone is a local provider while MTN is a South Africa based operator. MTN exited the market late 2021 due to the hardships brought on by the conflict. MTN's exit was a significant event in that it was the largest foreign investor in Yemen.

Before the conflict, the Republic of Yemen had two retail fixed operators: YemenNet, which is based in Sana'a and wholly state-owned and provides wired and wireless fixed services, and Yemen Mobile, which is based in Sana'a and majority state-owned and provides wireless fixed services. Their coverage was largely limited to the major cities. Since the conflict, the IRG established AdenNet, which acts as an alternative retail fixed operator in the south.

Today, the Republic of Yemen has virtually no fixed service and limited mobile coverage in rural areas. Much of the infrastructure in the areas and cities that have been at the center of the conflict have been damaged or destroyed. Before the conflict, satellite facilities using very small aperture terminal (VSATs) earth stations were used by enterprise customers for last-mile connectivity in remote areas. These facilities directly linked the first mile and last mile without any middle mile. Many existing satellite facilities are also reported to have been damaged or destroyed.

At the onset of the conflict, the Republic of Yemen benefitted from a national terrestrial middle-mile fiber network, owned and operated by the state-owned Public Telecommunication Corporation (PTC). The terrestrial network comprised 6,850 kilometers of fiber segments (excluding terrestrial links to Oman and Saudi Arabia) connecting all major cities and cable landing stations.

Destruction and disrepair of infrastructure has reduced service coverage, reliability, and availability. Over 25 percent of the Republic of Yemen's last-mile mobile infrastructure has already been rendered unusable by conflict damage.⁶⁷⁵ Network operators report that they cannot safely or economically service, repair, or replace damaged infrastructure. It is extremely difficult to import replacement equipment, upgrade equipment, or bring in qualified crews to repair or replace equipment that has been damaged or destroyed, much less to maintain the equipment that is still operational.

Recurring electricity disruption and fuel shortages also result in intermittent loss of service of equipment that is still operating. The blocking of interconnection between networks in DFG-controlled and IFR-controlled areas also limits the usefulness of last-mile connectivity, where it is available, for internal communications within the Republic of Yemen.

673 United Nations Population Fund (UNFPA), "Humanitarian Response in Yemen" (UNFPA, New York, 2021).

674 MTN Yemen has indicated its intention to exit the market.

675 World Bank Group, "Yemen Dynamic Needs Assessment: Phase 3 - 2020 Update" (World Bank, Washington, DC, 2020), 87–88.

Unsurprisingly, the Republic of Yemen's retail network operators have experienced significant financial disruption from the conflict. They have collectively lost in the region of USD 4.3 billion in revenue and in the region of USD 2.5 billion to USD 3.0 billion in shareholder value since 2014.⁶⁷⁶ These losses have been caused by destruction of infrastructure; rapid decline in revenues and earnings before interest, taxes, depreciation, and amortization (EBITDA)⁶⁷⁷; and steep increases in taxation by both the DFG and IRG, although it is unclear whether these taxes have been paid. Private investment in last-mile access networks has thus come to a standstill.

Assessing the impact of the conflict on network operator financial performance is difficult because verified or verifiable data are limited. One mobile operator, MTN Yemen, had been publishing financial and other performance data (as part of its listed parent company MTN Group's financial reporting). MTN Yemen's reported results enable estimating the performance of other network operators in the Republic of Yemen. MTN's operating revenues showed steady growth from 2008 to 2014, then declined by 40-55 percent from 2015 to 2018 to pre-2008 levels, and rose slightly in 2019. MTN Yemen's EBITDA, a rough measure of net operating cash flow from which operators fund capital expenditures, debt service, taxes, and return on equity, reached a very healthy 52 percent of revenue in 2014 but declined to 30 percent of revenue in 2020.⁶⁷⁸

The principal telecom state-owned enterprises (SOEs) – PTC, TeleYemen, and Yemen Mobile – that own and operate much of the country's shared telecom infrastructure are closest to the oversight of the Sana'a-based Ministry of Telecommunications and Information Technology, which the DFG controls.

The IRG reportedly has limited contact with the SOEs that are located in Sana'a, but it controls access to Aden, which is the Republic of Yemen's main port and an important submarine cable landing point.

8.2 Assessment of internal Republic of Yemen telecom investment climate factors

Five internal factors during the conflict that impacted the climate for telecom investment in the Republic of Yemen were assessed: (1) market open to entry, (2) ease of private investment, (3) spectrum needs met, (4) level playing field, and (5) fiscal reasonableness. Each factor is discussed in turn below, followed by a summary of key findings across all the internal factors.

Republic of Yemen: Market open to entry?

Infrastructure and service licensing in the Republic of Yemen, in areas controlled by both the DFG and the IRG, remain outdated, fragmented, and administered sub-optimally.

Since the inception of the conflict, the country's private operators have faced nonrecognition of existing licenses, unreasonable financial demands for new or renewed operating and spectrum licenses, and disruption of national networks based in Sana'a. As a result, Y-Telecom exited the market through bankruptcy in 2020 and MTN has also exited the market (MTN has subsequently transferred its majority stake in MTN Yemen to Emerald International Investment, affiliate of Omani conglomerate Zubair Corporation). Sabafon recently bifurcated its network between the north and south in an effort to remain functional in the divided state although interoperability between its networks in the north and south is uncertain.

The internal territorial divide has also adversely impacted the state-owned operators. Existing SOEs – PTC, TeleYemen, and Yemen Mobile⁶⁷⁹ – are based in Sana'a and therefore closest to the DFG's ministry. Completion of the Sea-Me-We 5 cable meant to land in Al Hudaydah was halted due to security concerns raised by one of the suppliers. A new SOE – AdenNet – was recently established by the IRG in Aden as an alternative to the DFG-influenced SOEs.

The Republic of Yemen was assigned an *unfavorable* score on openness to market entry.

⁶⁷⁶ Macmillan Keck estimates.

⁶⁷⁷ EITDA is an accounting term and a commonly used indicator in the telecom industry as a rough approximation of operating cash flow.

⁶⁷⁸ Sources: MTN Group annual results; Xalam Analytics (2020) for mobile market revenue estimates.

⁶⁷⁹ Yemen Mobile is majority government owned.

Republic of Yemen: Ease of private investment?

Even prior to the conflict, the Republic of Yemen's legal and regulatory framework for the telecom sector was suboptimal and not in-line with international best practices. Today the network operators face intractable political challenges within a uncertain regulatory framework. Most network operators have a single national network but now have difficulty operating country-wide – leading to a situation whereby people in one part of the country is unable to communicate to people in another part of the country.

Other internal factors suppress investment. Fragmentation of SOE ownership and governance has to some degree begun to undermine operation, maintenance, and use of existing shared infrastructure. Internal restrictions on movement of goods, people, and communications between areas controlled by the DFG and IRG, coupled with damage to infrastructure, censorship, and other aspects of the conflict, undermine both supply-side and demand-side activities. The prevalence of cyberattacks and unregulated digital surveillance puts both operators and users at risk. The Republic of Yemen was assigned an *unfavorable* score for ease of private investment.

Republic of Yemen: Spectrum needs met?

Spectrum unavailability has been a major constraint on supply-side telecom sector performance in the Republic of Yemen. Although Yemen Mobile was authorized to deploy a Code Division Multiple Access (CDMA) 3G network prior to the conflict, its competitors were never issued 3G licenses. Mobile operators have subsequently been authorized to provide 4G services by the DFG, but the situation over spectrum allocation remains unclear. The Republic of Yemen was assigned an *unfavorable* score on spectrum needs being met.

Republic of Yemen: Level playing field?

The Republic of Yemen's telecom sector enjoys some elements of fairness among rival operators, particularly in DFG and IRG treatment of competing privately owned mobile operators.

However, an outdated telecom law (from 1991) and absence of an independent regulator has undermined the extent of a level playing field. Prior to the conflict, a new telecom law (2008) had been submitted to parliament which would have established an independent regulator that would set and enforce fair and consistent rules to govern the sector.

The same ministries responsible for licensing and regulating private network operators control the state-owned operators that dominate large portions of the market in both DFG-controlled and IRG-controlled regions.

An example of the uneven playing field was the award of the only mobile broadband spectrum license (3G) to majority-state-owned Yemen Mobile, while none of the three private-investor-owned mobile operators has been awarded a broadband spectrum license. The Republic of Yemen was assigned an *uncertain* score on level playing field.

Republic of Yemen: Fiscal reasonableness?

The Republic of Yemen's IRG standard corporate income tax rate is 20 percent, but it applies a special rate of 50 percent on mobile operators and 35 percent on international telecom service providers.⁶⁸⁰ The Republic of Yemen also taxes mobile phone services at a 10 percent rate, which is double the normal rate.⁶⁸¹

The DFG's fiscal policies are unknown, but there are widespread reports that the DFG generates substantial tax revenues from the telecom sector. The UN has reported that the DFG generated approximately USD 159 million per year from telecom companies.⁶⁸²

Fiscal policies toward the sector are adversely impacting investment and sector functioning. Government efforts to extract long-term license fees are unreasonable for operators especially in circumstances of conflict and uncertainty. The oppressive fiscal burden on retail network operators hampers investment and innovation. Declining EBITDA, coupled with fiscal impositions that consume a growing share of EBITDA, have rendered mobile network operators with insufficient net cash flow to invest directly in capital expenditures or to borrow or attract shareholder equity to fund capital expenditures. As a result, new infrastructure investment seem to be stalled in much of the country.

The Republic of Yemen was assigned an *unfavorable* score for fiscal reasonableness for the reasons summarized in table 23.

680 Deloitte, International Tax Yemen Highlights 2017 (Deloitte, London, 2017), <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/international-business-support/deloitte-cn-ibs-yemen-int-tax-en-2017.pdf>.

681 World Bank, "The Republic of Yemen: Unlocking the Potential for Economic Growth," Report No. 102151-YE (World Bank, Washington, DC, October 2015), 37, <https://openknowledge.worldbank.org/bitstream/handle/10986/23660/Yemen00Republi00for0economic0growth.pdf>.

682 "UN Security Council Expert Panel on Yemen," Report No. S/2018/594 38 (United Nations, New York, January 26, 2018), <https://undocs.org/en/S/2018/594>.

Table 23: Republic of Yemen: Fiscal reasonableness determination

REPUBLIC OF YEMEN: FISCAL REASONABLENESS, 2001–20			
General taxes	Sector-specific taxes	Nontax impositions	Predictability
20% corporate income tax 5% sales tax	Special 50% rate for mobile service providers and 35% for international service providers 10% goods and services tax for telecom and mobile services	High and arbitrary fees	Not transparent Double taxation of companies due to competing governments Perception of ad-hoc fee imposition

Republic of Yemen overall rating: **Unfavorable**

Source: World Bank.

Republic of Yemen: Summary of key findings across all the internal factors

Table 24 summarizes the scores assigned to the Republic of Yemen for its internal telecom investment climate factors and its overall internal factor score.

Table 24: Republic of Yemen: Assessment of internal factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Market open to entry	1	Mobile market still has three operators (after fourth went bankrupt) Monopoly on mobile broadband held by majority state-owned operator
Ease of private investment	0	No modern telecom law Competing and inconsistent regulatory requirements Security situation deters investment
Spectrum needs met	0	Only 3G spectrum licensed to majority state-owned operator No 4G spectrum licensed
Level playing field	1	No comprehensive telecom law and operating licenses not harmonized Majority state-owned mobile operator favored by state
Fiscal reasonableness	0	Heavy reliance by de facto and internationally recognized state actors on telecom operators for fiscal revenue
All	2	

Source: MacMillan Keck.

8.3 Assessment of external Republic of Yemen telecom investment climate factors

Five external factors during the conflict that impacted the climate for telecom investment in the Republic of Yemen were assessed: (1) military or paramilitary interference, (2) international sanctions, (3) travel restrictions, (4) international aid for telecommunications, and (5) international security intervention. Each factor is discussed in turn below, followed by a summary of key findings across all the external factors.

Republic of Yemen: Military or paramilitary interferences?

Supply lines into and out of the Republic of Yemen have been disrupted by a tight naval control and restrictions to import through ports controlled by the Houthis imposed by the Saudi-led coalition and through checkpoints along all land routes into the Republic of Yemen through Saudi Arabia and Oman.

The planned Sea-Me-We 5 submarine cable system landing in Al Hudaydah has been difficult to access since the start of the conflict. At the inception of the conflict, the Republic of Yemen had several active cross-border fiber links into Oman and Saudi Arabia. Most of these links are now inoperable. Cross-border links into Oman have been inoperable since 2018.⁶⁸³ The cross-border links into Saudi Arabia at the Haradh and Alab land ports along the Republic of Yemen's northwestern border were destroyed during the conflict.⁶⁸⁴ The Republic of Yemen's network operators have also had their infrastructure and activities targeted. During the conflict, satellite connectivity has not been a good option for replacing lost fiber-based international connectivity because importing and operating VSAT terminals and larger earth stations is currently heavily restricted by the international coalition blockade as well as border checkpoints maintained by the DFG and IRG.

The Republic of Yemen was assigned an *unfavorable* score on military or paramilitary interference.

Republic of Yemen: International sanctions?

The United States has in force a Republic of Yemen-related financial sanctions program established by law and executive order that generally restricts transactions with persons identified by the Office of Foreign Assets Control of the US Treasury as threatening the peace, security, or stability of the Republic of Yemen.⁶⁸⁵ These sanctions generally allow telecom investment and equipment and technology sales into the Republic of Yemen, provided the recipient is not on the restricted persons list. The sanctions have not generally impacted the Republic of Yemen during the conflict, except for a brief period following the Trump Administration's designation of the Houthis as a terrorist organization in January 2021. This designation was removed by the Biden Administration in February 2021. Except the US export controls in the Republic of Yemen, there are no other broad trade restrictions or sanctions against the Republic of Yemen. The European Union and the UN have not imposed any broad sanctions. The sanctions have been targeted and limited in scope. For example, the UN imposed an asset freeze on five designated individuals in 2014.⁶⁸⁶ Arms embargo was first declared in 2015 on some of the Houthi leaders.

The Republic of Yemen was assigned a *favorable* rating on international sanctions.

Republic of Yemen: Travel restrictions?

The Republic of Yemen has been subject to heavy travel restrictions imposed by the international coalition during the conflict, particularly to and from areas controlled by the DFG, which is where most of the state-owned and investor-owned network operators have their network operation centers and where 80 percent of the Yemeni population served by these operators lives.

As a result, network operator executives and other personnel have been unable to enter or exit the Republic of Yemen. MTN, Yemen Mobile, and other operators have reported difficulty managing their networks in the IRG-controlled areas of the Republic of Yemen from network operation centers in Sana'a due to safety concerns and travel restrictions. Equipment vendors are also unable or less willing to provide in-country support.

Finally, the UN imposed a travel ban on designated Yemeni individuals to prevent the entry into or transit through UN member territories.⁶⁸⁷ The Republic of Yemen was assigned an *unfavorable* rating on travel restrictions.

683 Yemen-Oman cross-border fiber links were damaged by a tropical cyclone in 2018 and have not been restored. See Mansoor al-Bashiri, "Impacts of the War on the Telecommunications Sector in Yemen," Rethinking Yemen's Economy Policy Brief No. 21 at 7 (Rethinking Yemen's Economy, Sana'a, Yemen, January 2021), <https://devchampions.org/publications/policy-brief/>.

684 Mansoor al-Bashiri, "Impacts of the War on the Telecommunications Sector in Yemen," Rethinking Yemen's Economy Policy Brief No. 21 at 7 (Rethinking Yemen's Economy, Sana'a, Yemen, January 2021), <https://devchampions.org/publications/policy-brief/>.

685 See Executive Order 13611 (May 16, 2012), https://home.treasury.gov/system/files/126/yemen_eo.pdf.

686 UN Security Council Resolution 2140 (United Nations, New York, 2014), <http://unscr.com/en/resolutions/2140>.

687 UN Security Council Resolution 2140 (United Nations, New York, 2014), <http://unscr.com/en/resolutions/2140>.

Republic of Yemen: International aid for telecommunications?

The Republic of Yemen had been a recipient of World Bank technical assistance for its telecom sector before the conflict arose in 2011. The World Bank had been providing technical assistance to the responsible ministry to develop and implement sector reforms. These activities were suspended following the Houthi takeover of the government in 2014/15. The IRG has also received some international aid for telecom-related technical assistance activities. For example, USAID is providing technical support for the development by the IRG of a legal framework for mobile money and other digital financial services. On the whole, however, the level of telecom-related aid for the Republic of Yemen during most of the conflict period has been minimal and recent efforts do not include any financing for infrastructure investment. The Republic of Yemen was assigned an *unfavorable* rating for international aid for telecommunications.

Republic of Yemen: International security intervention?

Due to the duration of the conflict and geographic reach, the Republic of Yemen was assigned an *unfavorable* rating on international security intervention.

Republic of Yemen: Summary of key findings across all the external factors

Table 25 summarizes the scores assigned to the Republic of Yemen for its external telecom investment climate factors and its overall internal factor score.

Table 25: Yemen: Assessment of external factors impacting the telecom investment climate

Internal factor assessed	Score	Key relevant facts
Military interference	0	Saudi-led coalition has imposed naval and air blockade Telecom equipment imports restricted by coalition al-Qaeda paramilitary activities
International sanctions	2	US export controls effectively block transfers of US-origin telecom equipment, technology, or software
Travel restrictions	0	Inbound and outbound travel heavily restricted
International aid for telecommunications	0	Minimal technical assistance
International assistance in peacekeeping	0	No international peacekeeping assistance
All	2	

Source: MacMillan Tax.

8.4 Republic of Yemen's projected and actual teledensity evolution

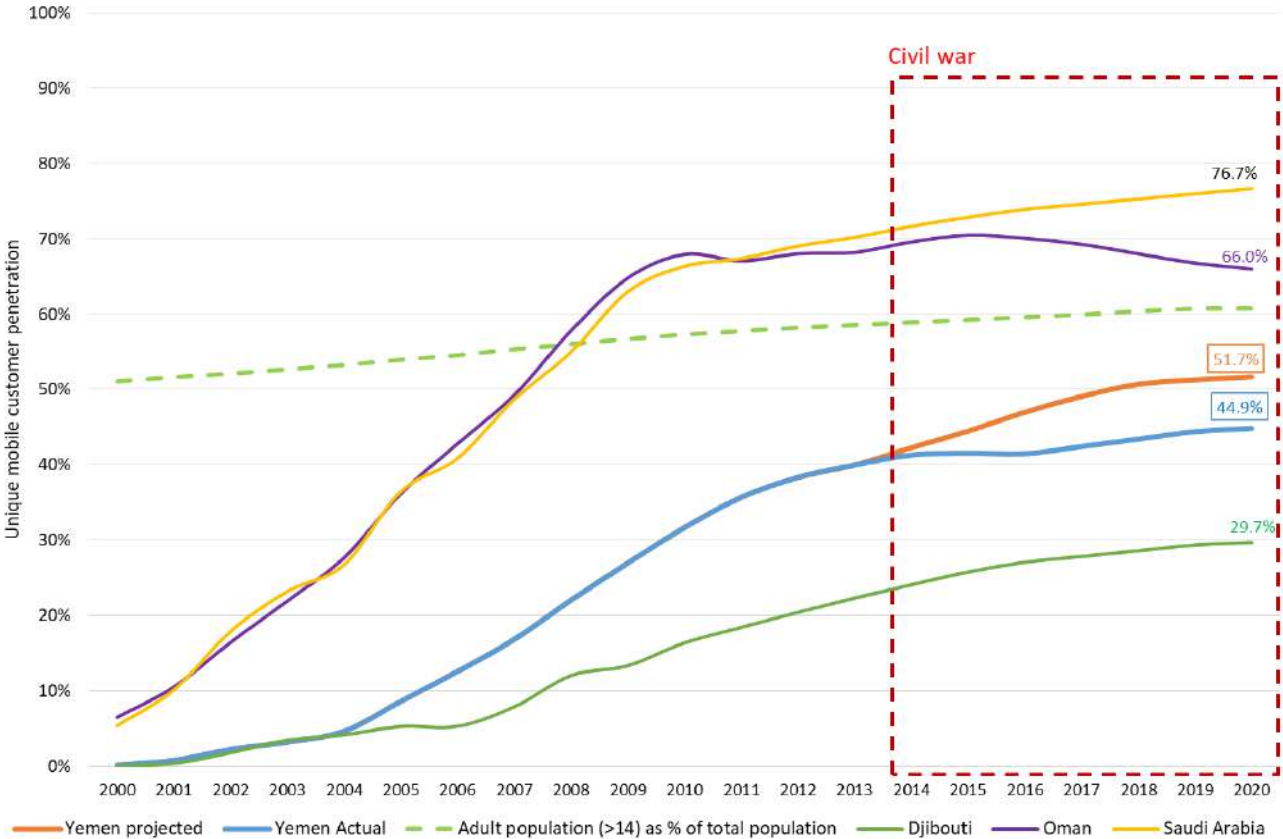
The following passages discuss the Republic of Yemen's teledensity evolution and the impact of the conflict.

Republic of Yemen's unique subscriber mobile penetration

The Republic of Yemen's mobile penetration is considered from 2000 through 2020, including the Yemeni Civil War from 2014 through 2020 (ongoing). The results are shown in figure 23. The adult-age (15+) population (green dashed line in figure 23) serves as an invisible upper bound on potential unique customer mobile penetration. Mobile penetration rates for Djibouti, Oman, and Saudi Arabia are also shown as benchmarks.

The projected growth in the but-for-the-conflict scenario was modeled to represent a reasonable basis for what could have transpired absent the conflict, with realistic improvements in the investment environment and earlier stimulation of market growth. The gap in the Republic of Yemen's mobile penetration between the actual and but-for-the-conflict scenarios grew from zero in the year prior to the conflict (2013) to 6.8 percentage points by 2020.

Figure 23: Republic of Yemen's unique subscriber mobile penetration, 2000–20



Source: MacMillan Keck.

The Republic of Yemen was already well behind Oman and Saudi Arabia in 2013, but it is projected to have begun closing the gap had it remained on the but-for-the-conflict trajectory through 2020. On the other hand, the Republic of Yemen was ahead of Djibouti in 2013 and remains ahead notwithstanding the conflict, albeit by a smaller margin than would have been realized but-for-the-conflict.

In the *but-for-the-conflict* scenario, the Republic of Yemen's mobile penetration (the orange curve in figure 23) is projected to have grown at a slightly faster rate since 2014 than actual mobile penetration (the blue curve in figure 23). Actual penetration remained static between 2014 and 2016, but it recovered moderately (an average of 0.8 percent per year) thereafter.

Mobile penetration in the Republic of Yemen has grown only 4.9 percentage points over seven years since the beginning of 2014, with a decline in the growth rate evident even before the civil war began. The Republic of Yemen's mobile market had four operators at the onset of the conflict, three privately owned and one majority state-owned. The country now has only three.

The commencement of the conflict in March 2015 severely damaged telecom infrastructure, and the resulting impact on teledensity can be seen. In addition to damage from the conflict, mobile operators must now deal with competing sources of state authority, despite operating single nationwide networks, inability to import equipment, and a growing fiscal burden. Mobile operator Y-Telecom went bankrupt in 2020. And a major foreign investor in Yemen, MTN has exited the market.

By 2020, unique subscriber penetration had reached 44.9 percent against a total SIM penetration of 54.1 percent (based on ITU data not shown in figure 23). This 17 percent differential between unique subscriber and total subscriber identity module (SIM) penetration levels is generally lower than in Djibouti (30 percent), Oman (107 percent), and Saudi Arabia (36 percent). The Republic of Yemen's actual unique subscriber penetration profile shows minimal growth from 2014 through 2017, but reveals a slow recovery from 2018, similar in penetration trend to two of its peers.

Only Yemen Mobile, the majority state-owned mobile operator, was licensed to use 3G spectrum (which is still the case) and 4G spectrum licenses have only been issued recently. Yemen Mobile's 3G service is provided using substandard CDMA2000 1x Evolution, Data-Optimized (EVDO) technology, and may also have restricted demand for a service that provides relatively slow download and upload speeds to customers. In contrast, the Republic of Yemen's neighbors introduced 3G and 4G service (Saudi Arabia in 2007 and 2012, Oman in 2008 and 2013, and even Djibouti in 2013 and 2017) to meet market demand.

The Yemen market continued to offer basic voice services with limited CDMA EVDO and Global System for Mobile Communications (GSM) EDGE on the service offered by the two remaining private operators.

Despite the more recent growth in penetration, the Republic of Yemen's actual penetration of 44.9 percent remains well below the notional 61 percent threshold of total adult population penetration. The Republic of Yemen's peers show different relationships between unique user mobile penetration and adult population, with Oman reaching 66 percent against 78 percent, the depressed Djibouti market reaching 29.7 percent against 71 percent, and Saudi Arabia reaching 76.7 percent against 75 percent.

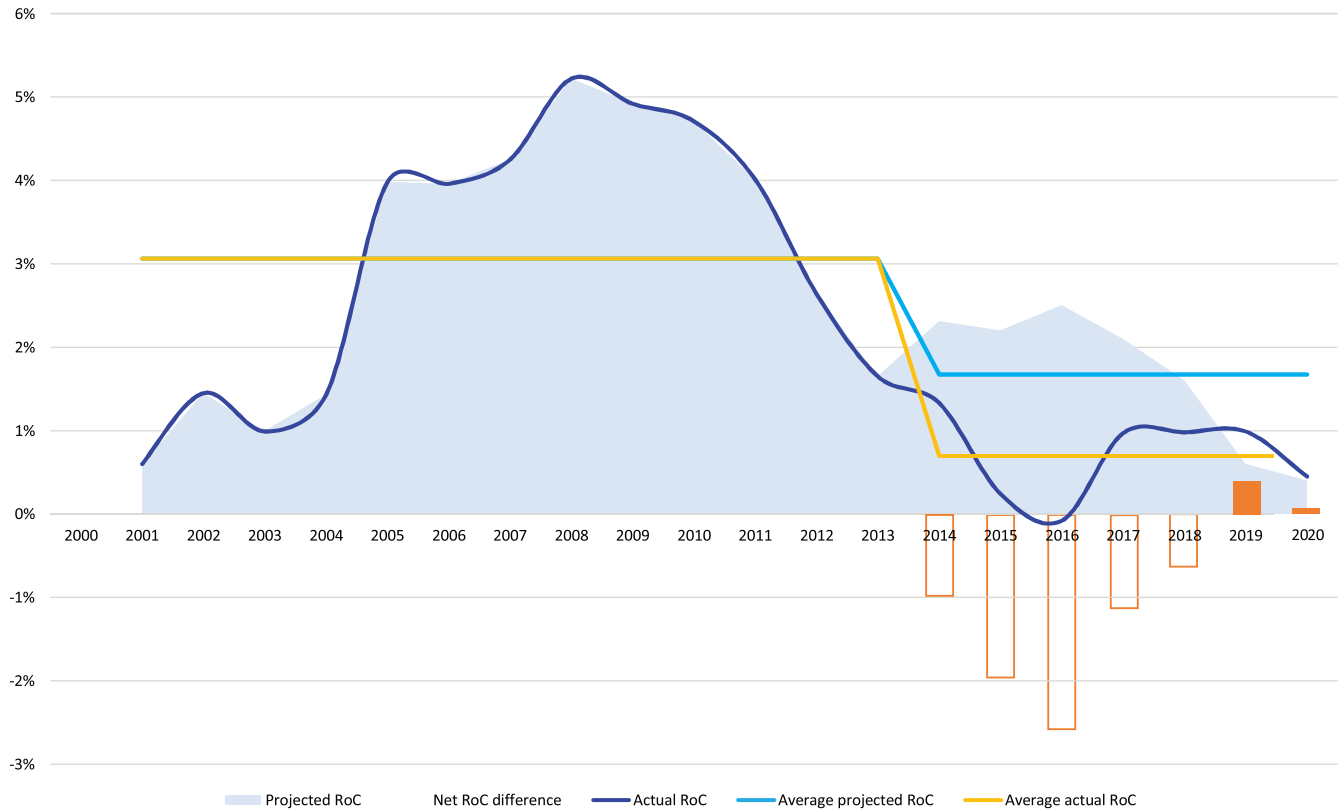
The penetration projection presents a reasonable but-for-the-conflict estimate of potential penetration levels, reaching 51.7 percent in 2020, still 10 percentage points below the peer average (but this gap was 26 percentage points in 2014). If Djibouti is excluded as an outlier, the Republic of Yemen remains 27 percentage points behind the Oman/Saudi average in 2020.

With a 2020 deficit of 13 percent between projected and actual penetration, the projection remains conservative in its view of potential market development in the Republic of Yemen. If the conflict had not occurred, it is likely that at least three mobile operators would have been active and would have moved to adopt 4G service, which would have spurred growth and competition in the market.

Republic of Yemen's mobile penetration growth rates

The Republic of Yemen's mobile penetration growth rate is also considered for the period from 2000 through 2020. The Republic of Yemen experienced significant annual growth rate deficits each year from 2014 through 2018, while experiencing a slight growth rate surplus in 2019 and 2020. The conflict has undeniably suppressed growth significantly, due to inability to restore and expand networks, low network availability, and inability of operators to upgrade networks technologically (2G compared with 4G in all neighboring countries). The results are shown in figure 24.

Figure 24: Republic of Yemen's mobile penetration growth rate, 2000–20



Source: MacMillan Keck.

Note: ROC – Rate of Change.

The yellow line in figure 24 represents the average annual mobile penetration growth rate during two periods – the pre-conflict period from 2000 through 2013 and the conflict period from 2014 through 2020. The grey line in the figure represents the average but-for-the-conflict annual penetration growth rate during the conflict period. The difference between the grey and yellow lines during the conflict period is the average annual growth rate deficit. The difference, as graphed in figure 24, is not insignificant, especially in its cumulative effect on the penetration level. However, with an actual annual growth rate of 0.70 percent and a but-for-the-conflict annual growth rate of 1.67 percent, the Republic of Yemen experienced a significant 58 percent deficit in annual growth during the conflict.

8.5 Correlating Republic of Yemen's supply-side investment climate and teledensity

The assessment of the Republic of Yemen can inform an overall view of the relationship between supply-side telecom investment climate and teledensity evolution in the Republic of Yemen during the conflict.

The Republic of Yemen was assessed as having an internal factor investment climate rating of 2 and an external factor investment climate rating of 2. Key internal factors included (1) uncertainty about renewal of existing mobile operating licenses, (2) late issuance of 4G spectrum licenses and the only 3G spectrum license issued to a majority state-owned operator, (3) legal uncertainty due to bifurcated territorial control, and (4) heavy state reliance on the sector for fiscal revenues.

Key external factors were (1) the naval blockade on all ports and closure of land borders to shut off supply lines to the north, (2) al-Qaeda paramilitary activities targeted at telecom infrastructure, (3) international travel restrictions, (4) only minimal technical assistance and no financial aid to the telecom sector, and (5) no international peacekeeping assistance (with international interventions tending to be in support of military operations).

The Republic of Yemen's actual annual teledensity growth rate deficit during the conflict period was 58 percent, which is the worst deficit among the conflict countries studied except for South Sudan.

Annex

Annex 1: FY22 list of fragile and conflict-affected situations

CONFLICT	INSTITUTIONAL AND SOCIAL FRAGILITY
<p>Afghanistan Burkina Faso Cameroon Central African Republic Congo, Democratic Republic of Ethiopia Iraq Mali Mozambique Myanmar Niger Nigeria Somalia South Sudan Syrian Arab Republic Ukraine Yemen, Republic of</p>	<p>Burundi Chad Comoros Congo, Republic of Eritrea Guinea-Bissau Haiti Kosovo Lebanon Libya Marshall Islands Micronesia, Federated States of Papua New Guinea Solomon Islands Sudan Timor-Leste Tuvalu Venezuela, RB West Bank and Gaza (territory) Zimbabwe</p>

