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RESEARCH ARTICLE

The Personal is the Political: Internet filtering and Counter Appropriation in the Islamic Republic of Iran

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Abstract. Issues of trust, privacy and security at the intersection of state intervention and the use of the internet both by 'publics' and by individuals for—from the State's point of view- dispreferred purposes have been of great recent interest to researchers. This has been accompanied by a slowly developing concern for the way in which these issues pan out for people in non-Western cultures. Based on a study of Iranians living in urban centers, we examine the way in which culture, State institutions, technological infrastructure and practices intersect. Iran is a republic with a theocratic constitution and relatively strict regulation of private life. It has one of the highest rates of internet appropriation and social media use in the MENA region, but use is heavily mediated by state interventions, for instance the filtering of sites such as Facebook and Twitter. We show how young Iranians, due to restrictions on their private lives, learn from early age on to deal with illegal access techniques such as proxy servers and virtual private networks (VPNs). These access technologies are often used for private purposes such as contacting and meeting other genders. However, these capabilities become even more important when preparing to leave the country or to articulate their political dissatisfaction, specifically at moments of political unrest. We discuss and develop the concept of 'counter-appropriation' and the 'counter-public' to describe the practices of urban dwellers in circumventing increasingly more sophisticated intervention by the state security apparatus.

Keywords: Iran, Counter-Appropriation, Counterpublic, Internet Filtering

1 Introduction

Iran is an important country in the region of Middle East and Northern Africa. However, it is distinct from the other countries in the region due to its historical, political and cultural development. The Islamic Revolution in 1979 was a historical rupture for the Iranian development with a massive political and ideological impact on the whole region. Since the Islamic revolution, Iranian society has

undergone tremendous changes. Social, economic, and cultural conditions have evolved – often under the pressure of sanctions imposed by the West. The legal codification of Islamic beliefs has impacted life in Iran in many ways – leading to levels of regulation which are not paralleled in liberal democracies. Political and religious restrictions contribute to the fact that social media applications play an important role in the articulation of political sentiment in the Iranian republic. The use of social media in its private, semi-public and public contexts is mediated, we argue, by very specific framing conditions.

Our contribution is threefold. Firstly, we describe the specific conditions that prevail in a non-Arab, Middle Eastern theocracy. The ideology of the regime, in this context runs counter to the practices of an urban middle class which has, for the most part, a more secular view. As such, clear social tensions exist. We contribute then, to a growing literature which addresses the role of information technologies across a continuum of cultures ranging from the openly conflictual, through the post-conflictual, to the broadly repressive.

Secondly, we develop a conceptual argument in order to show how the relationship between the State and its citizens is a dynamic one, constantly mediated by evolving technological arrangements and socio-political configurations. It is not always recognized that, in countries like this, the take up of new technology is often rapid. Citizens and institutions, then, have to constantly adapt to this changing landscape.

Thirdly, and although not specifically design- related, our study feeds into an evaluative narrative concerning political and personal risk and how to mediate risk through technical intervention. Other work being done by members of our group, work which draws substantially on the mapping of counter-appropriation and counter-public strategies, has specifically focused on tools which enable people to understand more completely what these risks entail (see e.g. (Tadic et al. 2016)).

In Iran, take-up of the internet has been one of the most rapid in the MENA region—only surpassed by Israel. In 2015, the number of Iranians who had online access was approximately 47 million, some 57.2% of its 80 million citizens. The number of users who seek to circumvent state-imposed interventions in the online world is striking. In 2015, according to the Iranian government, over 23.5 million of the country's youth used virtual private networks (VPNs) or proxies to circumvent online censorship (Akbari and Gabdulhakov 2019).

The Iranian case of the appropriation and counter-appropriation of social media is especially significant due to this high internet uptake. Moreover, it is widely assumed that social media played a major role in facilitating post-election protests in 2009. In this sense the Persian Summer, as we term it, can be understood as a precursor for the Arab Spring – starting in late 2010.

In our paper we will describe and analyse how the current use of social media reflects upon the specific socio-economic, political, and cultural conditions Iran

is facing right now. To understand how social media use is shaped by and shapes specific social practices in Iran, we have conducted qualitative field work focusing on the lives of young urban dwellers. The global political situation, notably the intensification of sanctions, have significantly affected opportunities for young urban dwellers. This is reflected in lost savings, and the consequential loss of marriage, family and property opportunities. The deteriorating economic situation has been accompanied by repressive regulation in relation to dress code, social mixing, the consumption of alcohol and romantic liaisons. It is accompanied by a level of surveillance, both on the ground and through technology use which is, as yet, not seen in Western democracies. The overall economic and political situation has prompted a degree of migration by young urban professionals. These issues also contribute to a varied use of the internet in general and social media applications in particular. As we shall see, in a country which has historically been culturally liberal, this increased state intervention is accompanied by a parallel concern for security and privacy.

We begin, then, by briefly examining the existing literature relating to privacy, security, the role of Internet capitalism and that of the State. Our aim in so doing is to point to the rather generalized narratives concerning the role of the Internet in State operations and in civil society. In the context we describe below, the tensions between the two play out in specific and historically bounded ways. We follow that with a description of existing work around the role of social media and other technology in conflictual and post-conflictual situations. We build on the concepts of appropriation and counter-appropriation (de Castro Leal et al. 2019) to draw attention to the way in which complex factors over a long time period produce particular patterns of use. However, some shifts are less long-term and are, arguably, the result of particular, deliberate and repressive approaches to the control of internet (and other behaviour). We develop the concept of counter-appropriation in order to understand how practices evolve quite quickly in a highly, and centrally, regulated society when new control policies and techniques are introduced.

2 State of the art

2.1 Privacy, security and the state

Considerable recent interest has been expressed about the tensions between privacy and security, mainly in advanced industrial states. There are a number of concerns and issues. The first is that of ‘surveillance’, both by state interests and, more recently, by the interests of platform capitalism (Landwehr et al. 2019). Allied to this is, and secondly, the use of information by third parties, especially in the context of the Internet of Things. Thirdly, how users manage privacy given these developments has been of concern. Underpinning these concerns is

a wider one, that of the degree to which the use of information by various parties is legitimate or otherwise. Various commentators have reflected on the tension between the right to privacy and the need for security (e.g. Solove 2004; Rule 2007; Albuquerque et al. 2014)), how users themselves construe issues of privacy and security (e.g. Gambino et al. 2016; Crabtree et al. 2017), and indeed how one might do research into these matters (e.g. (Birge 2009; Morton and Sasse 2012; Birge 2013)). Much attention, unsurprisingly, has also been paid to the role of social media in this respect. Specific research has indicated how social networking has privacy and security consequences. Various authors have pointed out how privacy and security are managed in practice by different groups, including teenagers (Madden et al. 2013) and employees (Abril et al. 2012). Other work is concerned with the degree of 'risk' (see e.g. (Tarasewich et al. 2006). Interestingly, broad attitudes have ranged from a generally positive view of the effects of social media (see e.g. Benkler 2006; Shirky 2009; Castells 2015)) to a much less sanguine one. Writers such as Zuboff (2015; 2019) and Lanchester (2017) have expressed significant concerns about the way in which privacy is potentially problematized by social media sites and their use of user/customer data. Pessimists such as Evgeny Morozov have pointed out that there is a hierarchical and domination dimension to cyberspace (Morozov 2012, 2013). Regardless; and as argued by Khazraee (2016; 2019) and with specific reference to Iran, social media have an evolving relationship with political or contentious movements depending on forms of control. Following Sassen (2005), they refer to these as digital formations, which,

> "can be used as a lens through which to study technology as a target of contentious politics … while communication practices change over time, the sophistication of government restrictions on communications … has also evolved. Second, this coevolution of communications practices by political organizers and efforts to centralize control of platforms by a government illustrate how digital communications platforms themselves can also be a point of contention."

Put simply, and we cannot do justice to a large and burgeoning area of research, the complex relationship between technology, political institutions, the economic nexus, and the practices of users increasingly matters in respect of personal security and privacy. We argue, then, that there is a need for continued attention to how these factors play out in situations where considerable tensions exist between State and civil society. Unstable or repressive political institutions are engaged in an evolving struggle with elements of civil society over rights to manage internet use. The struggle for such rights entails risk to civil actors and, as we see below, there is a consequential need for them to manage those risks in creative ways.

2.2 Social media in conflictual, post-conflictual and other challenging situations

A substantial part of the work on social media use in conflictual situations arose from the so-called, 'Arab Spring' (Aal et al. 2018; Aal et al. 2019; Al-Ani et al. 2012; Kavanaugh et al. 2013; Lotan et al. 2011; Starbird and Palen 2012; Wolfsfeld et al. 2013). These studies were mainly concerned with the use of blogging and micro-blogging sites, such as Twitter, during these popular uprisings. Al-Ani et al. (op cit.) looked at the way in which 'counter narratives' were produced by the Egyptian blogosphere in respect of protests against the Government's official, managed, communications. The blogosphere was characterized as an "alternative public space" These spaces, it was suggested, allowed for inclusive discussion on a wide range of issues and disparities (Howard and Hussain 2013). Mark et al. (2012) similarly analyzed the "war diaries", published by bloggers during the war in Iraq. Semaan and Mark (2011) conducted (mainly telephone) interviews with Iraqi civilians during the second Gulf war. Subsequently, Mark and Semaan (2009) identified interactional patterns during wartime, based on semi-structured telephone interviews with civilians from Iraq and Israel. Other studies include those of Zhou et al. (2010) on the use of Twitter during the post-election protests in Iran, analyzing more than three million tweets, and providing insights into the "the dynamics of information propagation that are special to Twitter" (Zhou et al. 2010, p.123). Other studies of Twitter in such contexts include Bruns et al. (2013). Howard and Hussain (2013) have suggested, in a similar vein, that social media represent 'information networks not easily controlled by state and coordination tools that are already embedded in trusted networks of family and friends.' (ibid: p. 34) Aouragh and Alexander (2011) distinguished different kinds of social media interaction in Egypt during this time and demonstrated some complex interrelationships. Wulf et al. (2013) subsequently argued that such studies, while extremely important, emphasized the online at the expense of 'on the ground' studies. In an attempt to rectify what they saw as a gap, they conducted studies in Palestinian (Wulf et al., 2013a), Tunisian (Wulf et al., 2013b), and Syrian (Rohde et al. 2016) contexts, using a combination of observational and interview methods. In their work, they effectively warned against a new form of technological determinism, pointing out that social media effects cannot be considered in isolation.

Similar analysis has been provided by AlSayyad and Guvenc (2015), who show how social media use during the Arab Spring took place in and through "the reciprocal interaction between social media, urban space, and traditional media …" (ibid: p. 2019. See also (Hänska Ahy and Maximillian 2016)). Wolfsfeld et al. (2013) argue that social media use here, as elsewhere, cannot be understood without reference to the political environment in which they are used and that, moreover, political protest, in general, precedes social media uptake.

Abokhodair & Vieweg (2016) address the contextual nature of privacy and how it is constructed in Qatar.

Recent work in the context of non-Arab societies has also looked into armed conflicts and the role social and mobile media plays when heavy and high-tech weapons are in place. Shklovski and Wulf (2018) investigated the needs why mobile and social media was used in the Donbas war and the resulting dangers to life. Having collected data from FARC rebels in Colombia, de Leal et al. (2019) explain how low-tech guerrillas dealt with high tech warfare in a long-lasting conflict. In the Colombian context, the high-tech infrastructure was described as 'attritional' and entailed a radical asymmetry of available technology between the two groups and hence one where 'counter appropriation' was necessary.

Another line of research has shifted towards cultural contexts which are described as post-conflictual (see e.g. (Comninos 2013)) or 'low trust' (Evans et al. 2018). The research points to both the potentially liberating effects of the social media but also to the way in which socio-technical infrastructures intervene in, and moderate, use. Karolak (2017) reports on changing social media use in Tunisia and argues that "their democratizing effects have not been thoroughly researched in countries that have recently undergone democratic transitions" (ibid: p119). Other work has focussed on social media use in MENA countries which have not experienced the same conflicts, but where the interest lies in reaction to a non-democratic state apparatus (see for example (M. M. Karolak 2011; Shirazi 2013; Guta and Karolak 2015). Further work which has focused on 'on the ground' behaviours in relation to internet use includes that of Dye et al. (2017). Their study of public access internet use in Havana, Cuba, shows how the creation of internet hotspots led to a reconfiguration of both social relations and of spatiality. Users there have to navigate various obstacles to use, including the very high cost of artifacts such as tablets and mobile phones, of subscription, as well as the unreliability of internet provision. In a 2nd study (Dye et al. 2018), they show how El Pacquete Semenal, a weekly digest of digital content is widely shared. El Paquete, thus, has become an informational alternative to otherwise constrained provision. Related work has focused on 'low trust' environments and includes studies of, for instance, the use of Facebook groups in Venezuela (Evans et al. 2018).

We draw on this interest in social media use in developing societies, particularly in the MENA region, to examine the way in which private/personal use of social media in Iran is manifested out of and mediated by a complex nexus of social, cultural, political and technical factors, most notably in the context of Islamic regulatory framing. While other research is either very specific or a rather generalized narrative, we focus on the very specific context and entanglements of these beforementioned dimensions. Here, we examine a cultural context where there has in the past been social and political conflict, and where conflict persists between this country and others. More pertinently for our purposes, it is

the way in which culture, politics, technology are intertwined in such a context that constitute our main interest. Here, we cannot speak of 'conflict' in quite the same sense. A largely theocratic regime in this context exerts considerable control over individual behaviours (both on- and offline).

Our contribution is explicitly not concerned with implications for technical solutions of privacy and security of people living in Iran. Here, this study provides a use case and an in-depth understanding of the threat to personal IT-security and the demand for privacy where many factors play role (e. g., technology usage, political institutions, economic nexus, practices of users, private and family life). By doing so, we extend the existing literature on the tension between the right to privacy and the need for security especially in the context of oppressive states and introduce the concept of counter-appropriation (de Castro Leal et al. 2019) to this unique case.

The following chapter examines how people appropriate technology in this specific context, one where the nexus of privacy and security is shaped in a particular way.

3 The case of Iran

3.1 Historical background

Iran is home to one of the world's oldest civilizations, going back at least to 2600 BC. Conversion to a Shiite version of Islam took place in the sixteenth century but significant political developments took place during the twentieth century as a result of, initially, a military coup in the early twentieth century (with the support of Western interests), followed by the establishing of the Shah regime. Another coup in 1953, organized by US and British secret services, followed an attempt to nationalize Iran's oil industry and resulted in the then Shah's political base becoming significantly strengthened (via, close relations with the United States and other western governments). The Shah had a modernizing vision of a fully secular state, a strategy referred to as White Revolution. At the same time nepotism and corruption was prevalent and arbitrary arrests and torture by his secret police suppressed political opposition.

In January 1979, the Shah fled Iran and Ruhollah Khomeini returned from exile and was instrumental in forming the Islamic republic, with a theocratic constitution. The Islamic Republic is rooted in populist economic and cultural policies, and the idea that a sort of "guardianship" provided by a supreme religious leader is needed. It is characterized by two overlapping constitutional concepts: a republican ideology with democratic tendencies and a theocracy with authoritarian structures derived from the divine authority given to clerics (Keddie 2003; Akbari and Gabdulhakov 2019). As the result of eight years of war following an Iraqi attack in 1980 on the just established Islamic Republic, which costed

hundreds of thousands of soldiers' life (Daniel 2012), the Revolutionary Guards (IRGC, Pasdaran, Sepah), regime-loyal elite unit of the Iranian military, became a major player in Iranian political, economic and cultural life.

In 1989, Ali Khamenei followed as the Supreme Leader of the Islamic Republic and is still in power as of 2020. The tension between theocracy and democracy is evident in elections which brought the pragmatic Akbar Hashemi Rafsanjani (1989 – 1997), followed by the reformist Mohammed Khatami (1997 – 2005) to power. The election of a conservative populist, Mahmoud Ahmadinejad (2005- 2012), was followed by major street protests and a violent crackdown. Since 2012, Hassan Rouhani is the elected president. He is supported by the rather more liberal reform movement. His government was able to negotiate (Benkler 2006; Shirky 2009; Castells 2015) the Vienna agreement in 2015—an international treaty on the Iranian nuclear program which was signed with the five permanent members of the United Nations Security Council—China, France, Russia, UK, US—plus Germany and the European Union. In exchange for strict international control of its nuclear program, a considerable part of the international sanctions on Iran were then lifted (Gordon and Sanger 2015). The hardening of US and Israeli attitudes led US president Trump to declare, in 2018, that the US would leave the Vienna agreement and would reimpose the pre2016 sanctions (Landler 2018). The US sanctions were re-imposed in November 2018 – just before the empirical research we describe took place. The other signature states of the Vienna agreement have declared, at the time of writing, that they will keep that agreement operating, although recent escalations in tension make that less likely.

3.2 **Internet and social media**

Here, we examine a cultural context where there has in the past been social and political conflict, and where conflict persists between this country and others. More pertinently for our purposes, it is the way in which culture, politics, and technology are intertwined that constitutes our main interest. More specifically, our attention in this study was drawn to the way in which internet filtering (also observed by (Dye et al. 2017)) has become one of the principle vehicles through which the State attempts to exert control. Research has shown that repressive regimes have ways of utilizing technology to restrict use. One such technique is that of internet filtering. There is a large body of technical literature which describes and classifies the technical mechanism of internet filtering such as IP blocking, DNS tampering, URL blocking using proxies, or keyword blocking (Deibert et al. 2008; Murdoch and Anderson 2008).

Information communication technologies can serve as a tool for autocratic regimes to advance their offline censorship apparatus to propagate state ideologies, discredit their adversaries and, more dangerously, establish a system of surveillance. Authoritarian deliberation, as it has been described by political

scientists, operates as a set of tactical moves that selectively create social openings in order to create a semblance of transparency, but in fact monitor and, accordingly, stifle dissent (He and Warren 2011). In China, the state has in fact promoted the spread of the Internet in order to proactively enhance its power (Kalathil and Boas 2010). By producing an Intranet software system, the Chinese government filters undesirable sites (Naughton et al. 2001, 159–160) and has established a regime of surveillance online.

It is no surprise, nevertheless, to discover that user populations seek to find ways around such restrictive regulation. Shklovski and Kotamraju (2011),for instance, describe some of the techniques people use to circumvent actively blocked access or an otherwise censored Internet. Our focus below, therefore, is very much to do with understanding in detail how these appropriation and counter-appropriation strategies pan out over time. A largely theocratic regime in this context exerts considerable control over individual behaviours (both on- and offline). Below, we examine how people appropriate technology in this context, one where the nexus of privacy and security is shaped in a particular way. From its early days, the internet played an important role in facilitating dissidence. Blogging and sharing documents were major activities in the early years (Khazraee and Losey 2016). At the same time the Iranian government began to institute counter measures such as filtering of internet activities, imprisoning of bloggers, or enacting restrictions on ISPs (Rahimi 2003, 2011). Following a contested presidential election in 2009, a protest movement used social media applications to organize political protest in major cities around the country. Indeed, the post-election movement can be seen as the vanguard of technology supported protests that hit other parts of the MENA region in 2010–2012.

Based mainly on data downloaded from Twitter, Tusa (2013) compares the Green movement in Iran with the Arab Spring movement in Egypt. While he argues that social media played an important role in these protest movements, he suggests that the tools were more effective for framing than for organizing them. He further believes that the Iranian case could indicate that a too high reliance on Twitter could endanger the organization of ‘on the ground’ protests (see also (Rahimi 2011)).

While we do not share this view, it does remind us that the relationship between on- and offline behavior is not a simple causal one. Our view is much like that of Al Sayyad and Guvenc (2015). There will be specific occasions when social media are a direct ‘weapon’, occasions where ‘framing work’ is done, and some occasions when not much more than posturing is being done. Our efforts are directed towards understanding better the conditions under which these possibilities become manifest.

Looking at social media use in politics, Rahimi (2011) describes four protest activities: (a) sharing reports, photos, and videos within the protest movement and towards international mass media, (b) mobilizing for political action, but

more specifically prior to the election rather than after it, (c) growing a virtual community of dissidents, (d) engaging in hacktivism, denial of service attacks on government websites, and the development of various software and techniques to unblock filtered social media sites.

The OpenNet Initiative (2009) has published a country report on Iran. They found already in 2009 that Iran expanded and consolidated its technical filtering system, at that time already among the most extensive in the world, using domestically produced technology. Before the run up to the 2009 election, the security apparatus had appropriated advanced espionage technologies, such as deep package inspection for monitoring and manipulating E-mail communication (Rhoads and Chao 2009). They also had created a cybersecurity unit to identify and locate antigovernment activists. Following the post-election protests, the Iranian government reacted by blocking social media and internet sites, reducing the internet download speed, and setting up cyber intelligence operation to delegitimize opposition www-sites and their leaders (Rahimi 2011; Aryan et al. 2013). To shape the Iranian cyberspace, the government also tried to build up a national ecosystem of social media applications under state control (Rahimi 2011; Aryan et al. 2013).

Ayran et al. (2013) examine " … the status of Internet censorship in Iran based on network measurements conducted from a major Iranian ISP during the lead up to the June 2013 presidential election." They measured the scope of the censorship by investigating the technical mechanisms used for HTTP Host–based blocking, keyword filtering, DNS hijacking, and protocol-based throttling. They found evidence that Internet censorship relies heavily on centralized equipment.

Until very recently, Telegram was still the most popular social media site with an estimated 40 million Iranian users. Akbari and Gabdulhakov (2019) describe the sociopolitical context for this, looking at Iranian social movements and their use of communication technology. They show how Telegram emerged as a tool emerging tool of 'contestation and political participation', contrasting it to Twitter and its "liberation technology" label. Telegram, they suggest, was successful because it remained outside mainstream geopolitical narratives. The platform had taken many functions of the Internet, including email, messaging, discussion forums, blogs, news websites, e-commerce, social networks, and even television. Even Iran's Supreme Leader, Khamenei, had a Telegram channel. Kermani (2018) evaluates the effect of Telegram on journalism and news writing in Iran. He demonstrates the way in which different channels are used on Telegram as daily news transmission vehicles. Asnafi et al. (2017) examine the use of Telegram in academic libraries in Iran. They show how a vast range of files, news and information, book introductions, images and literary quotes were shared on these channels. However, since about two years ago, Telegram has been blocked on different occasions starting with the protest movement in December 2017. In April 2018, Iran's judiciary announced a complete ban on Telegram. The ban

went into effect despite the widespread popularity of the platform which was used by approximately 40 million Iranians. So, Iranian authorities seemed to have attempted to break a social media monopoly that they assumed Telegram had achieved and tried to move users to the state sponsored Soroush messaging application.

Kargar and McManamen (2018) authors investigate the use of Psiphon, one of the most widely used circumvention tools among Iranians. They explain how Internet Service Providers (ISPs) in Iran and the Telecommunications Ministry were instructed to block access to content on the Telegram network. Iranian users, it seems, rushed to apply circumvention tools in order to remain connected to Telegram. The State attempts to migrate Telegram users to nationally developed in-house platforms seemed to have, so far, mainly failed since users expressed significant reservations about the prospect of increased surveillance.

In conclusion, however, there seems to have been very little of 'on the ground' studies on internet use in Iran have been done, largely because of the significant degree of risk attached to both Iranian citizens and researchers (Aryan et al. 2013). The work we describe and analyze below seeks to rectify that omission.

4 Research methods

Our work, and this has to be considered in the light of problems of access and a degree of risk for various participants, is exploratory. It exemplifies the difficulties that have resulted in a paucity of recent research into internet activity in, for instance, China. Until recently, studies of internet use in China, and the inherent tensions involved, were fairly common. (see Yang 2003; Tai 2007)). In the last five years, however, systematic surveillance has meant that 'on the ground' studies of this kind have become appreciably less common. They arguably necessitate what has been described as ethical covert research (see e.g. (Calvey 2008)). One author undertook observations during a 12-day sojourn in Iran. During the stay and thereafter a series of narrative interviews with Iranians were conducted. Narrative interviews are intended to elicit detailed 'stories' and are regarded as reflexive productions of both interviewers and interviewees. They tend not to take the question/ answer form associated with traditional social science (see e.g. (Gubrium and Holstein 2001; Holstein and Gubrium 2011), but instead, and as stated, have a much more exploratory and unstructured character. We gathered additional data from participants by means of an online interview, post-interview reflection, and an analysis of online sources. The conceptual framing that we arrived at was done through discussion among the authors until a consensus was achieved.

In the first phase, one author traveled to Iran for 12 days in December 2018 and January 2019. The journey started from Teheran, taking buses to Kashan, Isfahan, Yazd, Persepolis, and Shiraz. The author had local contacts

in Teheran and Isfahan and stayed in these places on two occasions, each time for two nights, with Iranian families in their homes. The remaining nights, hotels were used. Travelling on public transportation between the cities enabled the author to observe and talk to a variety of Iranians. While the route was chosen deliberately, the interviewees were selected opportunistically. People were approached wherever opportunities arose and narrative interviews took place with those who were willing to speak, for instance on the streets, in buses and the train, in shops and hotels, and in the two homes. In total, we conducted eighteen interviews with fourteen interviewees. We also spoke at length on three occasions with two interviewees. Interviews overall lasted between 15 min and four hours. In the case of one person, an IT professional whom we call Farah, we had three interviews on different occasions in Teheran, and engaged in multiple Telegram conversations lasting several hours. The interviews were mostly conducted in English, three were conducted in Farsi but translated synchronously to English with the help of local translators. In one case, we used Google Translate to talk to an interviewee with very basic English capabilities.

Given the political conditions, it required intensive trust building between the authors and interviewees. It also took time to build a mutual understanding within the interviews. Adler and Adler (2003), among others (e.g. (Roulston 2014)), have elaborated in detail on a range of "reluctant respondents", with issues of secretiveness, relative advantage or disadvantage, and the sensitivity of certain topics. The interviews focused on the actors' private, economic, and political conditions of life and their usage of mass media and ICT, specifically social media.

The choice of interviewees was, perforce, opportunistic, specific and mostly limited to Iranians living in urban centers. We were limited by the need to converse in English, and finding people interested in talking to a foreigner. While the majority of the interviewees were in their 20 s and 30 s, we also talked to two members of their parents' generation. For reasons of practicality and confidentiality, we did not audio record the interviews. However, we documented interviews and observations every evening and added additional (field) notes.

As the information we have gained leaves some of our interviewees in vulnerable and dangerous situations, we took several precautions to preserve our contacts' anonymity: All names in this paper have been omitted or changed. Other information that could reveal a person's identity such as gender or the exact locations where specific events took place has been omitted or deliberately changed. We also handed over this manuscript to two of our interviewees – to check whether the current presentation of the empirical data would endanger any of our informants.

5 Empirical findings

5.1 Post-conflict politics

It goes without saying that political activity does not cease when overt conflicts end. We have pointed out that our research here forms part of an ongoing program aimed at understanding the relationship between a complex set of factors which include broad socio-political background, the social media, local political and cultural activity and material circumstance. We have not thus far obtained data about a relatively stable but restrictive, non-Western regime which nevertheless experiences systematic, if irregular, opposition. In what follows, we firstly describe the interactions between State regulation, private and family life, and the role of social media in managing apparent tensions. Subsequently, we look at the way in which internet filters have played a significant role in the evolution of the relationship between State and civil society.

In describing the situation in Iran, one of our regime-critical interviewees explained the population's political positioning as follows: there are 20% of the population who support the regime actively, 20% are more or less openly in opposition to the regime, and the rest is politically rather passive. In his eyes, the last group, the largest, contributes to the political stability of the current situation. The strong political antagonisms inside Iranian society have a long history. This fact was brought into focus by one family we visited. Coming from an upper middle-class urban background, the father had studied and was actively engaged in the Shah's White Revolution – working in modernization campaigns in the countryside. He reported that during the time of the Islamic Revolution he had experienced difficulties when students at his school had interrogated him about the nature of his religious beliefs and the degree to which they represented the 'right thinking'. The mother, being a professional herself, had declined wearing the head scarf in office for some time after the revolution. The father also had witnessed the burning of books considered to represent imperial or western decadency after the revolution and explained that he had tried to prevent these events. In Iran, he suggested, the previous regime had been too soft on 'the mullahs' and compared it to a much more repressive approach in Turkey at the same time. He explained that all of the leading mullahs during the Islamic Revolution had been in the Shah's prisons but, according to him, none of them spoke about being tortured. While the younger members of the family characterized their political views as tending towards a nostalgia for the Shah's regime they admitted to having said or done little to express opposition to the current regime.

However, one of them, it seems, took part recently in anti-regime demonstrations. He reported unrest which had been caused by the government not paying steel workers in Khudistan (Abadan) for 6 months. This also let to demonstrations in Central Iran. The young family member explained that the demonstration turned into open conflict between the demonstrators and the Basij militia in the

streets. The Basij militia is a volunteer force under the control of the Revolutionary Guards. He said about the militia that: 'They beat you and will kill you – if they can!'.

The Islamic Republic is confronted with *local* unrest and demonstration movements on fairly regular bases (see also below). In Esfahan, we could, on one occasion, see police being deployed in the face of a demonstration by a couple of hundred protesters, carrying signs. The driver, on being asked what the demonstration concerned, said that he did not know and that he did not propose to stop because, 'it is too dangerous'.

5.2 **Effect of sanctions**

When visiting Central Iran, the effect of 15 plus years of economic sanctions imposed by the US and other Western governments on Iran was not, at that point, immediately visible to us. The urban centres were growing, construction and infrastructural projects were continuing, and the standard of living seemed higher than expected. However, people critical towards the mullah regime claim that the economy was mismanaged and in urgent need of resources. Money, they believed, was diverted to countries such as Syria and Yemen or in support of organizations such as Hamas and Hezbollah. An older man who was a higher functionary in the late days of the Pahlavi dynasty argued that it was a mistake to make foreign policy which is in conflict with policy in the USA (and Israel). In his eyes, such a policy has led to sanctions and seriously harmed the economy. A PhD student from Teheran referred to a comparison made between Iran and Turkey in a similar way: "[Before the Islamic Revolution] the Turkish people came to Iran as tourists. But now the story is completely different."

The sanctions re-imposed by the US in 2018 have had some serious effects on the economic conditions and the lives of the people we were talking to. A big effect was derived from the substantial devaluation of the Iranian Rial (IR), reducing its exchange value to just one third of its previous rate. The government has kept the prices for petrol, gas, electricity, and transport more or less unchanged. However, the prices for imported goods such as milk, meat, medication, or some consumer goods have doubled or tripled. US sanctions, in this respect, have had a damaging effect on the economic wellbeing of ordinary people. The PhD student and her husband had saved money over the past 10 years to buy a flat in the Teheran area, but apartments are traded in Iran on the basis of the value of the US $ – supposedly because most of the construction materials have to be imported. In consequence, the price of housing has tripled while incomes have stayed the same in local currency terms. She told me that she made 900 Euro before the sanctions, now her income is it valued at only 300 Euro. Later, we learned that her company had not even paid her salary in recent months.

A nurse who had already a place at an Italian university to study medicine there had a similar experience. Family savings were now valued at only one third

of what would be required for life in Italy. The nurse had, therefore, given up her plans to study in Italy, at least for this year.

The sanction-induced devaluation of the IR has other implications. For instance, computer equipment has become extremely expensive, costing some 2.500 Euro for a standard model, which has meant that ownership is less common and equipment is often shared.

In a Telegram conversation, the Kurdish PhD student from Teheran summarized her perspective on the last 40 years of Iranian history in a very pointed manner:

> "Our people loved Imam Khomeini and the revolution. But we have paid a heavy cost for this love: eight years of war, killing many young and elite people, destroying our country and our economy, overpopulation, poverty, unemployment, […]. Inside, our government filters us. Outside the other countries sanctioned us. Filter and sanctions: the words that are both very familiar for Iranians."

On another occasion the same student reflected on her positioning re. the current political situation as follows:

> "The IR GC's [Revolutionary Guards, Sepah] policy in war and military affairs is very good. But unfortunately, with the power Sepah has acquired, the Revolutionary Guards have entered the political, economic and social sectors. And their decisions and behaviors are radical and these behaviors are the main reason for people's dissatisfaction.
> In a critical situation in the Middle East, the existence of a powerful force like the Revolutionary Guard is a great blessing for Iranians. We love our country. And if people have to choose between the Sepah and the United States, they will certainly choose the Sepah. Because Iranians do not want their country to be colonized by any other country. We do not agree with the Sepah's policies, but that does not mean that we want to sell our country to the United States. I wish that the mullahs understood this and were most grateful to the Iranian people."

5.3 **Moral universe**

The legal framework of the Islamic Republic intervenes deeply in the lives of its individuals and families. Citizens have to follow a certain dress code which, for instance, forces women to wear a headscarf in public spaces. Alcohol is forbidden, so are discotheques, night clubs, or public parties. On most public occasions, women and men have to participate in a gender-segregated manner. (Intimate) cross gender relationships are illegal before marriage. Marriages are traditionally arranged by the families. The rigidity with which these regulations are enforced by police and guardian of the revolution depends on the political climate. Under

the Rohani government, the interpretation of these rules seems to have liberalized – at least in the urban areas we visited.

One young Iranian woman we met works as a nurse and considers herself to be religious – born into a Teheran middle class family, where both parents were working as office clerks. From her perspective, the biggest issues currently are the enforcement of the headscarf and the problematic relationship between the genders. However, she implicitly breaks the rules by having a boyfriend with whom she had lived for half a year in Shiraz, in a rented apartment. She said that both parents knew about it – but did not agree with it. They did it anyway, she said, stating that 'nowadays you need to know each other well before you can marry'. When living together they hide their civil status by telling the landlord and neighbors that they were a married couple. She also told us that her sister who is some 10 years older than her did the same thing. However, she did say that at that time it was much riskier. Among her generation, she believes that 90% of the couples in Teheran find their partners themselves. In the countryside she estimated this part to be half.

She also mentioned considerable drug and HIV problems in the Islamic Republic – which she sees as a nurse in her intensive care unit in Teheran. HIV is prevalent due to extra marital sexual relationships but nobody can talk about it – since the official state ideology is that it does not exist. Commenting on the politics in the Islamic Republic with regard to morals and gender relationships, she referred to a Persian saying: 'If you want to push people too strongly to heaven they will end up in hell!'.

At the same time, the Iranian regime seems to some degree to have liberalized, at least in the urban centers. When staying with an upper middle-class family, we learned to know two female siblings, 22 and 18 years old, who both have boy-friends about which their parents know. One of them told us that she would even prefer to have a foreign boyfriend, and added that immigration to Europe is one of the options for her future. It seems that the law which puts people on the verge of arrest for pre-marital relationships was very seldom applied at the time of research. If and when the police catch an unmarried couple, they will normally just inform the parents and leave it to them to deal with the situation. A male family member explained that social media played a central role in his adolescence and the building of gender relationships. He learned to use proxy servers to access pornographic videos at an early age. Later on, Yahoo Messenger became available and was commonly used as a dating app by young Iranians. Yahoo Messenger allowed users to register in an anonymous manner and offered groups of a size of up to 10. So, he went into different groups which had rotating membership to find girls. These girls he would mark and try to transfer into a stable Yahoo group of friends. However, he explained, that there was a lot of faked identity going on in these groups – e.g. boys declaring themselves to be girls. He told us that he was not very successful with his dating arrangements through this

online communication medium. By contrast, a distant cousin found a girlfriend through Yahoo Messenger, whom he finally married. However, it seems the marriage did not last for long since the girl in question continued to look for new boyfriends online.

In 2009, Facebook (FB) became more important in Iran. For dating, he explained that it had the advantage that it allowed users to present themselves with photos etc. Some of the girls, he said, used beautiful photos of themselves. Specifically interesting was the 'suggested friend' function of FB. This way, girls were suggested and one could decide whether to suggest a FB-friendship-relationship to them and start to chat. FB therefore became something of a dating app in Iran. FB started to get filtered in the context of the Iranian elections – but people continued using it via VPN (see next section). So, Facebook became an important part of Iranians' daily life, people creating groups of colleges, friends, classmates, etc. This informant deleted his Facebook account when he started his military service. In the army barracks, mobiles were forbidden and computers not available. He reregistered with Facebook after he had left the country and uses it since then only in a limited manner, stating: 'It became out of date!' He also explained that there was also a dating app at that time, called Orkut, which had limited success because it was considered to be too close to the government.[1]

The discrepancy between socially and legally enforced behavioral patterns and the expectations of members of the young generation finds expression in the usage of social media. Reflecting upon their role, a PhD student from Teheran explained to us in a post-visit talk via Telegram:

> "Social Media for us Iranians have different meanings than [for] other people in the world. Our society is forced to self-censor due to some social constraints. Many people are forced to pretend to attend work, education, or community, […] cyberspace is used as an opportunity for their true self.
> According to statistics, Iranians' average use of social media is more than four times the global average. Many [Iranians] will appear in society with various masks because of their occupational and social status and the special cultural conditions in Iran. Pretending to be faithful and religious, orbital ethics, hijabing and so on, are examples of masks that some people wear […]. The cyberspace gives these turbulent and masked people a chance to show their real identity in the form of pseudonyms and obscure images, without any fear or fake conservatism, […]."

Even in the big cities of central Iran, it is not easy for young people (and their foreign guests) to go out at night. There are very few opportunities to socialize in the way that young people in the West would socialize. When staying with a family in Esfahan, the host suggested we might meet an English language

[1] Orkut was developed by a Turkish Google employee and was popular in different countries such as Brazil: https://en.wikipedia.org/wiki/Orkut

conversation group in one of the more upmarket coffee places. He had found the announcement for this meeting on a couch surfing site, looking for events in Esfahan. Like other sites, couch surfing is blocked in Iran. However, our host uses it via a VPN, also for his traveling inside Iran.

5.4 **Emigration**

Almost all the English-speaking actors we met on our trip in central Iran had toyed with the idea of leaving the country or even had more concrete plans. Many of the young actors envisioned moving to a foreign university. Social media played a major role in preparing for these moves.

We met a gallery worker who had graduated from the University of Teheran – the top academic institution in the country – with a BA in Information Systems (IS). He worked for two years in the IT department of the Iranian President's office. Right now he is pursuing a MA in IS but in parallel had started a gallery specializing in Iranian contemporary art. He explained that all the classmates of his BA program are now outside of the country. Graduating from the top academic institution, he wants now to apply for a PhD program at one of the top US universities. On his PC, he showed us www-sites of these programs – he also understood the publishing habits of the IS community perfectly, e.g. the basket of top IS journals. Moreover, he followed the best-known US researchers on twitter. He was fully aware that, due to the US travelling restrictions, it will not be easy for him to return to Teheran during his PhD studies. He told us that he started to use social media when he was a boy aged 13. He used Yahoo Messenger mainly to learn to express himself in English. He found somebody in the US, an old lady as he later found out, to whom he could send English writing and she would correct for him. He then moved to Facebook where communication partners became '*visible'* by adding their photos. However, he was able to move some relationships from the Yahoo Messenger world into FB – specifically the lady who had helped him learn English.

Learning a foreign language is a prerequisite for leaving the country on a student ticket. There are many more ways social media platforms help this learning process. A student already admitted to a MA program in Germany explained that he still improves his German and English capabilities by following Instagram teachers who provide daily new content on their pages. Social media can be even more instrumental in enabling the finding of opportunities to study in foreign countries. One student explained that he used a Telegram group called '@nachdeutschland' (German for: @togermany) to support his application process to the university and to the German embassy for a visa. The group provided information such as: how to find universities in Germany, how to apply, how much money and which insurances you need in Germany, how to deal with the German embassy, what you need to do when you enter Germany, how to find cheap flights to Germany, and German

courses. An Instagram group set up a Telegram account to deal with the interviewing process of the German embassy in Teheran. Applicants were advised how to structure their file containing all the documents the German embassy required. Due to this preparation, his interview took only 10 min and the German embassy officer acknowledged: 'If everybody were that well organized I could go home at 10am.'

In this Telegram group, the members developed an application based on the Autofill extension of Mozilla Firefox which enabled them to input the data required for an interview request within seconds. The telegram group became very popular due to the crucial advice offered. The Telegram group still contributes to the mutual support of Iranian students in Germany, e.g. when they want to change university. Our informant also explained that one of the group's founders met his Iranian girl-friend via his activities in the Telegram group. When the young people have left Iran, social media plays an important role in maintaining relationships with their families in Iran. This element of 'transnationalism' has been of interest to scholars for some time (see for instance(Schiller et al. 1995; Levitt 2001; Mazzucato et al. 2015; Recchi and Favell 2019; Beauchemin and Safi 2020)). It reflects a growing recognition that migrants are not simply 'uprooted' or 'transplanted' from one culture to another but remain somehow 'in between' and often wish to maintain contacts with their culture of origin for different reasons. We met a retired teacher whose two sons are living in The Netherlands and Germany. We asked him how he communicated with his sons. He answered that he did so via Skype. We asked him whether there was any problem in using Skype – he answered that basically there were not. Sometimes, he said, the government reduces the speed of Skype, but normally it works fine. He said that he also uses Telegram while knowing that it is forbidden. He did not feel very much threatened by this fact, stating: "*The government also knows that we use it!*".

5.5 **Dealing with internet filtering**

There are a variety of reasons why Iranians have appropriated the internet and particularly social media into their lives in the way they have. The sections before offer some insights with regard to this issue. However, and as mentioned above, there is a very dynamic relationship between Iranian government practices regarding technology use, and the responses of the population we encountered. The government follows a policy of internet filtering, by blocking internet access to many sites, or reducing the transmission speed for international news and social media sites. These measures can be, and are, applied both temporarily or relatively permanently. The government also tries build an internet ecosystem which is under its control. In the following, we will describe how young Iranians have learned to deal with the internet filtering.

5.5.1 The case of telegram

When we visited Iran, the messenger platform, Telegram, had been blocked for eight months. Before filtering began, it was the most popular social media platform in Iran with about 40 million users, about half of the Iranian population (Kargar and McManamen 2018). Though WhatsApp was not blocked at the time of research, Telegram was still the most widely used messenger platform in Iran. So, the circumvention of internet filtering has become a widely spread phenomenon across the breadth of the Iranian society. We were interested both in the reasons why Telegram remained so popular and how Iranians overcame internet filtering in a broader sense. The student who pursuits his MA studies in Germany explained that Telegram took the space of WhatsApp in the social media ecospace in Iran, when the latter platform got temporarily blocked (right now, WhatsApp is freely available while Telegram is blocked). Before being blocked, WhatsApp was quite important in Iran. Telegram took its place. Since then, he explained, Telegram has been banned for shorter periods of time when there was political instability somewhere in the country. Finally, it was banned some months ago – during some water management-related protests.

The young gallery worker explained why, from his point of view, Telegram was blocked by the Iranian government:

> "Telegram was last year the most used messenger. The Iranian government wanted that the porn channels were blocked within Telegram. Telegram complied with this demand of the government. Then the government wanted that the political channels were blocked, as well. In this case Telegram did not comply. So, they blocked it."

Another interviewee explained that Telegram had complied two years ago with a demand by the Iranian government to close down its video conference functionality in Iran. This demand was expressed in a letter by the Iranian government to the owners of Telegram during a time in which the government had declared the usage of video conference and mms services to be '*hadwa'*, meaning sin, since these services transmitted the human image. At that time WhatsApp was also still banned and the transmission speed of Skype was reduced to make video conferencing rather impossible.

After the filtering of Telegram, the gallery worker stated that some people have moved to WhatsApp, others to the Iranian functional clone of Telegram which the government had created, called Soroush. However, he expressed strong reservations about this application: "I do not want the Iranian government looking into my private conversations. I rather like my data to be in the US or Russia."

The Russian developers of Telegram reacted to the new situation in Iran by developing a function which makes it easier for users to rely on proxy servers in accessing the platform. This function offers an alternative access model to that

of using a VPN. When staying in Esfahan, a young member of the local family explained to me how he uses this new Telegram function. He Googles, he said, Telegram's current proxy server's internet-address (that is possible, as well, for other blocked applications). In the case of Telegram, he can input this IP-address into a specific Telegram menu (to select the proxy's IP) and then Telegram directly connects with the proxy www-site. That way, the blocking of IPs can be circumvented. It is also possible to deal with proxy addresses at the level of the operating system or input them into the WWW-browser.

On the face of it, it is surprising that some people, at least, prefer the currently blocked Telegram from the freely accessible WhatsApp. According to a student, WhatsApp is mainly used for phoning and video calls. It seems to have the best audio and video quality of the freely available services. The advantage of Telegram is mainly due to some specifically designed functions which are important when communicating on sensitive (political) issues: (1) In Telegram, one can delete messages which have been sent before the recipient can read them for both sides while WhatsApp, for long time, only allowed you to delete these messages on your side. (2) In Telegram you cannot see the identity (mobile phone number) of actors participating in a certain user defined group. In WhatsApp this information can always be seen. (3) In recent years, Telegram increased the number of people who can participate in a user-defined group from 200 to 1000 and then 5000 and nowadays the number is unlimited. That makes it very suitable for distributing information to larger circles while nobody can track who exactly is member of this group. (4) Telegram allows users to create channels which allow them to upload materials with unlimited amounts of data. One can send links to these data storage facilities and make people aware of these materials. The unlimited amount of data makes this function very attractive for political communication. Dropbox and other commercial sharing and storage sides have upper limits for the volume of free data.

While the student had a very clear perspective on the comparative advantages of Telegram's functionality, he did not know much about who owns and runs the Telegram platform nor did he know about its relation to the Russian social media platform, vKontakti. Still, the assumption is held that these platforms are definitely more secure than the ones created and controlled by the national authorities.

The filtering policies of the Iranian government towards foreign social media sites is obviously changing over time. These decisions seem to depend on power struggles within the political elite as well as on the level of manifest social protest. One PhD student explained that the different factions within the Islamic Republic's political elite had rather different filtering policies. While the actors close to the Revolutionary Guards at the time of research wanted to filter even sites such as Instagram, the more moderate government, specifically the minister of telecommunication, Mohammad-Javad Azari Jahromi, had publicly rejected

this idea. The banning of Telegram in 2018 was preceded by a similar controversy inside the ruling elite (Alimardani 2018; Al-Monitor Staff 2018).

Another important factor in the evolution of the ruling elite's internet filtering policy seems to be the political situation in the country, specifically the degree of (local) political unrest. When speaking about a temporary block of a social media application, our interviewees could almost always relate this event to specifically situated political unrest. One interviewee explained:

> "While Instagram is mostly not blocked, it was blocked last December [2017] when there was a major wave of demonstrations shaking the country, following an attack by Ebrahim Raisi, a fundamentalist mullah in Mashdad, against the rather liberal president Rohani. Raisi's attack on Rohani shocked the country because it created unrest against the whole mullah regime. On Instagram, many photos dealing with the various demonstrations and uprisings were shared."

Another interviewee assumed there was yet another element of the Islamic State's filtering policy: "But they [the authorities] also seem to try to avoid one application getting a too strong position among the Iranian population."

Before blocking it, Telegram was also used by the Islamic Republic's government and even the Religious Leader had a channel on this platform. The case of Twitter is quite different. The use of Twitter is forbidden and the sites are blocked since the election in 2009. However, it is still used by more than 2 million Iranians. Many Iranian politicians had accounts on Twitter at the time of research. For instance, the President of the Islamic Republic had posted up until November 2018. His account, in English, seems to be mainly directed towards western publics and media. There are also periodic discussions in the Islamic Republic to unblock Twitter.

5.5.2 **Private networks and proxy servers**

Most of the Iranians we spoke to used proxy server and virtual private networks to circumvent internet filtering. They use VPNs not only to access social media sites but also to access international mass media or to download movies. At the time of research, a variety of international news sites such as CNN and BBC were blocked in Iran and needed to be accessed via specific access tools.

We watched a movie at the home of a couple who both work in the IT field. On their computer they had a large collection of new foreign movies –many of them banned in Iran. They presented this collection with some pride. The wife explained that her husband is an expert in dealing with VPNs and finding movies on the internet. On another occasion, we looked at a recent (banned) German movie called 'Liebe auf Persisch (Love in Persia)' which describes a German-Iranian romance extending over two generations and which. includes images of

an Iranian girl going to swim in a lake wearing a bikini. Swimming in public waters in that manner is completely forbidden in Iran.

A male interviewee explained that the technological skills he acquired by accessing illegal movie content turned out to be very valuable during the 2009 post-election uprising. Facebook was already blocked before the presidential election in 2009. According to the interviewee the blocking happened because: "Ahmadinejad [the president] had only 350 followers while Mousavi [the opposition candidate] had 5.000 followers on Facebook." However, enough people had gained enough experiences with proxy servers that Facebook and Twitter continued to play a role in enabling the post-election unrest.

We heard rumors that the Revolutionary Guards are implementing their own VPN services and will make them publicly available. Some locally available VPN are offered at a much lower price than they are in Europe. We learned that Iranians who use a VPN service from a European provider pay some 4–8 Euro per months. In Iran there are VPNs offered for free or for a much smaller fee. The rumors say that some of these services are provided by the Iranian secret services to monitor users' activities inside the VPN. Among the VPN channels available in Iran, there are obviously different levels of security. Some of our interviewees were aware of these differences. For instance, a foreign IT student who visited home expressed his pride in being able to use the VPN of a German university because, he said, it was a very sophisticated one.

A female student explained to me that she uses VPN services mainly to access Telegram and to download US movies. She told us that that when she bought her mobile, she at first got a VPN which cost some 4 Euro per months. However, later someone told her that there are VPN tools for free. Nowadays she uses these. When we asked her about the rumors that the Revolutionary Guards were running VPN servers – she said that she had heard the rumor, too. She also told us that she does now know who the provider of the different VPN services is she uses. But she stated that Iranians do not like to pay for software applications. Therefore, they like to use the free VPN ones. She also explained that VPN services do not always work. She assumes that when demonstrations happen locally, the government blocks the VPNs temporarily. About every six months, she has to move to another VPN because the old one has been permanently blocked by then.

When speaking about the blocking of social media sites and proxies as well as disabling VPN server access after some periods of time, the student's brother mentioned that the government slows down everything: 'They want to steal our time, make everything difficult, and slow us down! But we are living in a modern era. The government cannot control access to information anymore.'

At a bus station, we spoke to the retired teacher whose two sons are working abroad (see above). Since he told us that he uses Telegram to communicate with them we wanted to know whether and how he uses VPNs or proxy servers. He did not understand these technical concepts, pointing out that he just uses his

mobile phone to talk to his sons in Europe. A young lady standing by us at the bus station understood our question. She smiled at us knowingly and explained to the teacher what the question was about. He then explained that a relative is doing these 'technical things' for him.

5.6 Jamming of satellite TV

The filtering of the internet is accompanied by a ban on satellite antennae and the jamming of satellite TV. When staying with a family, the host rather proudly showed us his TV set and all the programs he could receive via the Eutelsat satellite. He switched through BBC Iran, Deutsche Well International, and a series of other international channels which are all banned in Iran. The family also watched an exile Iranian TV station which is called Manoto. It is produced in London by Exile-Iranians but our host did not know how the emission is financed or who owns the station. The station shows a lot of Anglo-Saxon entertainment with subtitles in Farsi. There seems to be little advertising. With regard to the news, Manato shows videos which are uploaded from Iranian sources. These videos are presented without too much in the way of journalistic checks. Therefore, they cover events which the BBC cannot yet cover because it has verification policies. When we watched Manato, the channel presented video covering a student demonstration on the campus of the University of Teheran. Students were, it seems, protesting against incompetent bus-fleet management after an accident involving an old bus had cost the lives of ten students. Our host explained that almost everybody nowadays has a satellite antenna. The public TV emissions were so bad that satellite TV is required to stay informed. While it is illegal for Iranians to have a satellite antenna, almost everybody in the urban middle class owns one. When Ahmadinejad was president, it was common for neighbors to denounce each other for having an antenna. They can still do, our host explained, but nobody in the police will follow-up on such denunciations anymore.

With regard to TV jamming, our host explained that the state security has acquired Chinese technologies which disturb satellite emissions. However, these jammers are believed to emit dangerous waves which can cause cancer. Therefore, nowadays, jammers are only used in a case where the political situation becomes very unstable in a certain region.

6 Discussion

6.1 Summary of the findings

Providing an explorative case study, our results cover a wide range of different areas, from the current situation in Iran with its sanctions, to traditions and moral values, to emigration movements and the use of ICT to overcome internet filters.

All of these areas are important to understand the interplay of the personal and political life in Iran.

The situation of the Iranian regime can be described as relatively stable, where most of the population is politically passive. Nonetheless, there are local unrest and demonstration movements, which also often lead to open confrontations between the demonstrators and the Basij milita.

Besides this the Islamic Republic is still under economic sanctions imposed by the US and other Western governments. While these sanctions are not immediately visible, they mean some serious effects on the economic conditions and the lives of people (e.g., reduced exchange value of the Iranian Rial, prices of apartments increased, income stayed the same). These sanctions have a significant impact on the lives of ordinary people. Besides these external influences, the legal framework of the Islamic Republic intervenes deeply in the lives of its population: There are many prohibitions (no alcohol, night clubs or public parties, separation of gender on most public occasions), cross gender relationships are illegal before marriage and enforcement of the headscarf for women, to name a few. Individuals must be creative to live more freely (e.g., couples hiding their civil status to live together before being married) and the usage of technology started to play a major role (e.g., use of social media to build gender relationships, use of proxy technologies to access websites with pornography). Here Facebook became more important in Iran; on the one side to get to know the other gender and also to collect information with are rarely accessible in Iran. After FB got filtered in the context of the Iranian elections, people continued using the platform by implementing proxies.

Here, social media played also a major role in preparation of emigration ideas. Many young people adapted social media at a very young age and used it to practice their English language skills or inform themselves about possible study programs abroad. Telegram was also important to look for places to study somewhere else, different Telegram groups go beyond just providing information about study programs but also offer support to get accepted and prepare for the trip (e.g., what kind of insurances do you need, how much money do you need). After leaving the country, social media is important to maintain relationships with their friends and families back in Iran.

All of the previous mentioned skills are built up because of the Iranian policy about internet usage, here they follow a restrictive one of internet filtering, by blocking access to many internet sites, or by reducing the transmission speed for social media and other websites. Telegram was the most used social media platform in Iran with around 40 million users. It gained so much popularity after WhatsApp was blocked for a period (nowadays WhatsApp is available, while Telegram is blocked). In the past, Telegram complied to some demands by the Iranian government (e.g., shutting down porn channels, closing the video conference functionality in Iran) but not to all of them (e.g., blocking political

channels). Telegram was blocked for shorter periods of time, but after some water management-related protests, Telegram was completely banned. The developers of the social media platform created therefore a new function inside Telegram to rely on proxy servers for accessing the platform. Until today Telegram is the preferred social media solution due to its high range of functions (e.g., anonymity of the users in specific groups, high number of people in groups, channels for distributing material).

While internet filtering is a major tool for the government, it is also changing over time, depending on the power struggles withing the political elite and also the political situation itself in the country (e.g., political demonstrations). To circumvent the internet filtering, many use proxy servers and virtual private networks (VPNs) to access social media (see above) or other website (such as BBC or CNN). The skills to use proxies or VPNs are also used to access illegal movie sites and download banned movies, which were also later-on used to access Facebook and Twitter after the presidential election 2009 and the following unrest. VPNs are also a very controversial topic itself, people using them are discussing which one have the best service, local available VPN are at a much lower price compared to the ones from Europe or the US. VPNs are also blocked by the government and the users need to move to another one. In addition to filtering the internet, the Islamic Republic also bans satellite dishes and disrupts satellite television, where the former is no longer monitored and the latter is only used in exceptional circumstances.

7 Discussion

Our work is subject to a number of limitations, some of which are unavoidable. Firstly, this is a very particular set of data. It is not at all representative for the whole population of the Islamic Republic. The interview sample covers an interesting segment, since it is part of the well-educated, English speaking intellectual elite. We are unable to draw conclusions about political stability in the overall country and the Iranian countryside is likely to be very different. Nevertheless, we make a series of contributions to knowledge of Internet use in non-Western societies. In doing so, we contribute to the developing landscape of studies concerning technology use in politically challenging or fraught circumstances. Firstly, our approach is consistently ‘on the ground’ (Wulf et al. 2013b), involving qualitative approaches to understanding in practice what people are doing with online resources in societies which—in that respect—are less well represented in academic discourses. Knowledge of countries like Iran is often simplistic and sometimes straightforwardly wrong. Viewed from afar, we suggest, there is a tendency to see political institutions as representative of a culture. We are not the first to observe, however, that a conservative regime does not define a whole culture (if indeed there is such a thing) and young, urban, users of social media

exemplify this since, in some cases, their use of new technology can be as sophisticated as that of the regime. We follow Dye et al. (op cit, p. 3668) in suggesting that, ‘ our research sheds light on what these efforts might focus on to provide access that holds meaning and value for new and evolving adopters.’, but extend this by showing how the meanings created, in the circumstances we describe, can exist in a tense and problematic relationship..

Secondly, and following Khazraee and Losey’s (Khazraee and Losey 2016) argument concerning the mutually evolving relationship between social media and political control, we add a focus on practice as it also evolves over time. We have shown how the practices of people can only be understood in and through a detailed consideration of the way in which political institutions manage technological possibilities, the material circumstances which pertain, and how ordinary people also utilize technologies as acts of ‘counter appropriation’. The quality and use of VPN servers as a response to systematic filtering is a salient example of this. We have, in a previous paper, referred to the notion of ‘counter-appropriation’, the uses to which people put the social media and other resources in order to respond to, react or adjust to infrastructures which can be described as ‘attritional’ (de Castro Leal et al. 2019). That is, where such socio-technical infrastructures are explicitly directed at the control, manipulation and sometimes destruction of dissenting voices.

We argue that our conception of ‘counter- appropriation’ differs both from previous usages of the term (see e.g. (Peluso 1992)) and from appropriation per se. It provides, we believe, a lens through which the dynamic and evolving use of various internet-related technologies become, variously, useful or useless, or need to be dealt with in very ways which reflect a changing political, institutional and technological landscape. Previous work has described appropriation as being the process by which a complex of roles, motives, organizational and/or community positions can result in a particular pattern of artifactual use. It is consistent, in that sense, with the use of the term, ‘publics’ to describe organized sets of interest that mobilize around specific issues. There are two important elements to this concept. Firstly, it reflects an interest in a long-term, partly surprising shift in patterns of use and, secondly, it foregrounds the way in which artifactual use comes about through collective cooperative behavior (Stevens and Pipek 2018). It is, thus, not a concept necessarily predicated on analysis of individual use. The concept has been used, more often than not, to describe patterns of emerging use in organizational contexts but can equally well describe such patterns in the context of civil society (see e.g. (Pipek et al. 2009)). In general, the concept can be seen as one which defines and explains processes by which individuals and groups can make new technology ‘their own’.

However, in and of itself, the concept of appropriation does little to help us understand the specific ways in which conflictual and post-conflictual circumstances result in highly particular arrangements of socio-political, cultural,

material and technological force and create responses which are explicitly geared to at least mediating but more often resisting the effects of these arrangements.

The concept of counter-appropriation does not, in contrast, foreground stable, long-term behavioral shifts nor does it implicate the re-use of existing organizationally or politically mandated technologies. Rather, it explicitly foregrounds the way in which externally imposed technological, material, organizational and other arrangements which constitute the infrastructure are resisted through use of what comes to hand. In effect, long-term and stable shifts in usage are under external 'adversarial pressure' in situations where political, material and cultural forces are themselves undergoing rapid shifts. De Castro Leal et al. (2019) pointed to the way in which such responses had to do with infrastructures which were explicitly directly at the control of a particular subsection of the population of Colombia. They termed such infrastructures, 'attritional'. Put simply, the relationship between those who seek to manage the effects of an infrastructure and those who might seek to avoid them are engaged in something of an arms race. With due apologies to Stephen Jay Gould and Eldredge (and without pushing the analogy too far), counter-appropriation and its relationship can perhaps be understood as a kind of 'punctuated equilibrium' (1993), such that where an appropriation practice can be a 'slow, unnoticed, quiet and evolutionary process' (Stevens and Pipek, 2018), counter-appropriation is in contra-distinction. It can be a rapid reaction to abrupt shifts in policy or the implementation of a new technological apparatus. It can entail the use of entirely different applications, often illegally, to confront this. It can, in and of itself, produce responses and measures designed to obviate these counter measures.

This has, we argue, a direct effect on the formation and maintenance of counterpublics in less democratic circumstances and tells us something about the specific relationship between counter-publics and more private use. Habermas (1991) and Dewey (1927), associated with the term 'public', had an explicit interest in the democratic political process, but neither had much to say about emergent relationship between the political and the private in more repressive contexts. Le Dantec & DiSalvo have shown how the term's use as been subject to considerable variation and, for our purposes, the idea of the 'counter-public' as articulated by Fraser (1990) and by Warner (2002) seems fruitful since it speaks to constellations of interest that run counter to dominant narratives. Publics, then, can be characterised, unoriginally, as responding to emergent issues contextually and as being of many kinds, often overlapping. Counter-publics exist in a direct and countervailing relationship with dominant narratives. What we are calling counter appropriation, then, can be seen as the means by which technology and/or other material forces are used in the formation and maintenance of counter-publics. Because of the rather more repressive nature of regimes of this kind, publics and counter-publics of the kind associated with the public sphere cannot exist. Rather, the counter-public has a more shadowy and amorphous nature.

What we see in the Iranian context is an interesting admixture of appropriative and counter-appropriative strategies, such that some strategies simply represent a way of dealing with social realities in order to pursue personal interests whilst others are much more explicitly geared to ways of resisting the 'endless pressure' (Pryce 1986) that these agglomerations of force present.

Looking at the phenomena of filtering internet sites, we find an ongoing competition of appropriation of surveillance technologies by the regime and counter-appropriation by (a significant part of) the population. Already before the post-election protest movement, the state security had obviously started to appropriate filtering and surveillance technologies. They used it to filter pornography www-sites and, already during the election campaign, Facebook. A part of the population started to counter-appropriate via proxy filter technologies to have access to filtered www-sites. Interesting, it seems to have been the restrictions on private lives which have triggered the counter-appropriation moves. However, these capabilities appropriated through very personal activities became highly politically relevant at the moment when the post-election protests broke out. Indeed, and this is very much in keeping with the concept of counter-public, living private lives which are in conflict with an official morality can already be political. In the case of Iran there is an additional dimension insofar as overcoming the restrictions on actors' private lives via social media platforms is highly political because it prepares and enables counter-appropriation moves when political conflicts are fought out in the internet and elsewhere.

State blocking activities impacted the appropriation of social media platforms – but did not determine them. While the original uptake of Telegram was spurred by a temporary filtering of WhatsApp, it looks that the state's intent to filter Telegram and push people towards national social media ecosystem did not work out as intended – at least not up to the time of research within certain sections of the population. Interestingly, the regime had appropriated the Telegram platform for a number of years, e.g. the Revolutionary Leader had his channel, while at the same time the opposition counter-appropriated it for regime-critical discourses.

Our interviewees counter-appropriated proxies and VPNs to circumvent the filtering of Telegram (and other platforms and media content). Here, they were supported by externally offered infrastructures: proxy server, search engines to find proxy servers, features build into Telegram to administrate proxy addresses, and VPNs offering channels into foreign servers. In this situation the state's surveillance apparatus came up with the idea to build VPNs of which the content transmitted through the tunnel could be surveilled. In a next move of counter-appropriation, Iranians are learning to distinguish between 'save' VPNs and those being built to be surveilled.

In the conflict investigated by De Castro Leal et al (2019) between the FARC guerilla and the Colombian government the counter-appropriation moves did not rely on the same infrastructure and technologies (airplanes, high tech sensing and

targeted bombing). In the case of Iran, the observed antagonisms between government's appropriation and opposition's counter-appropriation worked in the same 'infrastructural plane', the internet. However, the technologies were rather distinct. Among others, the government appropriated deep-package inspection and URL-filtering technologies and implemented social media platform and VPNs under national state control. The counter-appropriation relied on foreign-owned social media platforms, such as Telegram, and VPNs tunneling into foreign servers. Counter-appropriation against state-intended control of the internet in Iran is so normalized that the state authorities have tolerated many of its instances. However, this policy of tolerance is not a stable given and depends often on the (regional) level of political unrest. Some of the Iranian interviewees were quite confident that they can win the race against state surveillance and control technologies by means of their counter-appropriation activities, but are very conscious of state responses to new political developments. In other words, to repeat the point made above, where appropriation of technology is typically largely unobserved because of its slow and rather evolutionary character, counter-appropriation has a different character. The learning curve is triggered and impacted by the adversarial side's moves, but are conditioned by prior experiences in the use of artefacts in order to circumvent filtering mechanisms for private or even intimate reasons.

8 Conclusion

Our paper, as we have stated, is not explicitly concerned with the design of technological solutions to the problem of personal security and privacy in Iran. Nevertheless, it can be seen as an evaluative approach to understanding the threat to personal security and the demand for privacy in circumstances which we know little about. It thus contributes to threat (and risk) analysis, as exemplified by Tadic et al. (op cit). The point here should be obvious. There are unlikely to be any design interventions possible for us which are specific to countries which have the characteristics we recount above. Having said that, a better understanding of the various ways in which different non-Western regimes and their citizens manage the business of internet use is necessary before we can begin to build applications of a more generic kind which, potentially, can confront the constraints on use, the risks entailed and the management of a variety of consequences which might otherwise be unrecognized by those of us in the West. The continued effort to pattern that landscape is, we firmly believe, important.

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