Opening Digital Borders Cautiously yet Decisively: *Digital Filtering* in Saudi Arabia

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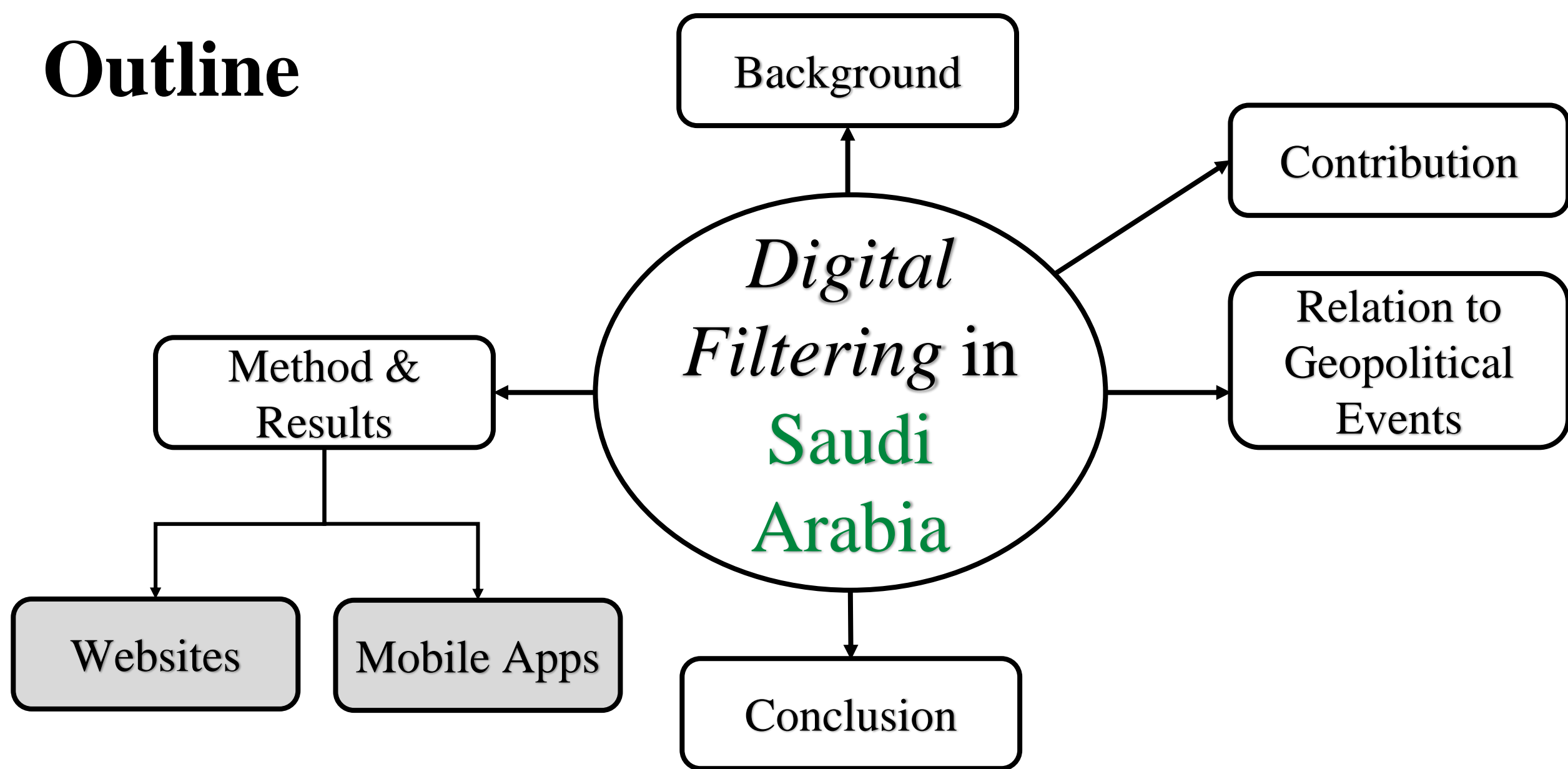
KINGDOM OF SAUDI ARABIA

Whether such events translate into changes in the *digital filtering* policies?

Outline

Background

- The Kingdom of Saudi Arabia is considered one of the most conservative countries in the world

- What is being blocked?
  - Violations of the Islamic values
  - Shares contents considered Immoral:
    - Pedophilia, drugs, pornography, gambling
  - Harming national security
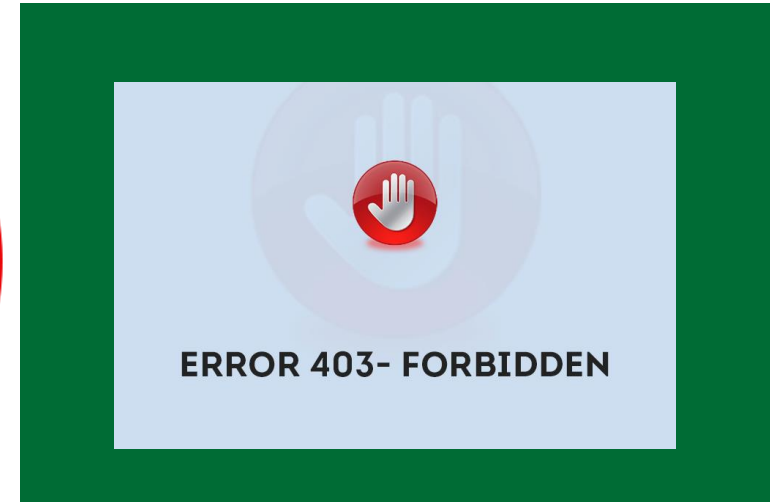
ERROR 403- FORBIDDEN

Background

General Filtering Warning Page

Filtering Warning Page by the Ministry of Culture and Information

Contributions
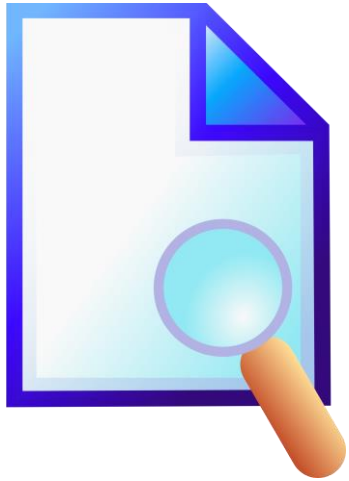
What content is filtered?

How is filtering implemented?

How does filtering evolve over time in response to geopolitical conditions?

Contributions

Digital Filtering in Saudi Arabia

Quantify
- Network Accessibility
- **Mobile Apps** Accessibility

→
- Most blocked category is Adult
- All apps are blocked in 2017. All are accessible in 2020 except WeChat

Understand
- Understand Filtering Mechanisms

→
- Internet filtering is based on HTTP and TLS

Interpret
- Connections to Geopolitical Events

→
- ISIS-friendly sites are blocked. Qatari, Iranian, and Turkish news sites are blocked

Methodology - Sites

- We tested the reachability of the most popular websites based on Alexa ranking

- Inspired by significantly expanding the Samizdat* methodology

Web Site → Input → Testing Tool → Output → DNS Filtering / IP Filtering / HTTP Filtering / TLS Filtering

amazon alexa
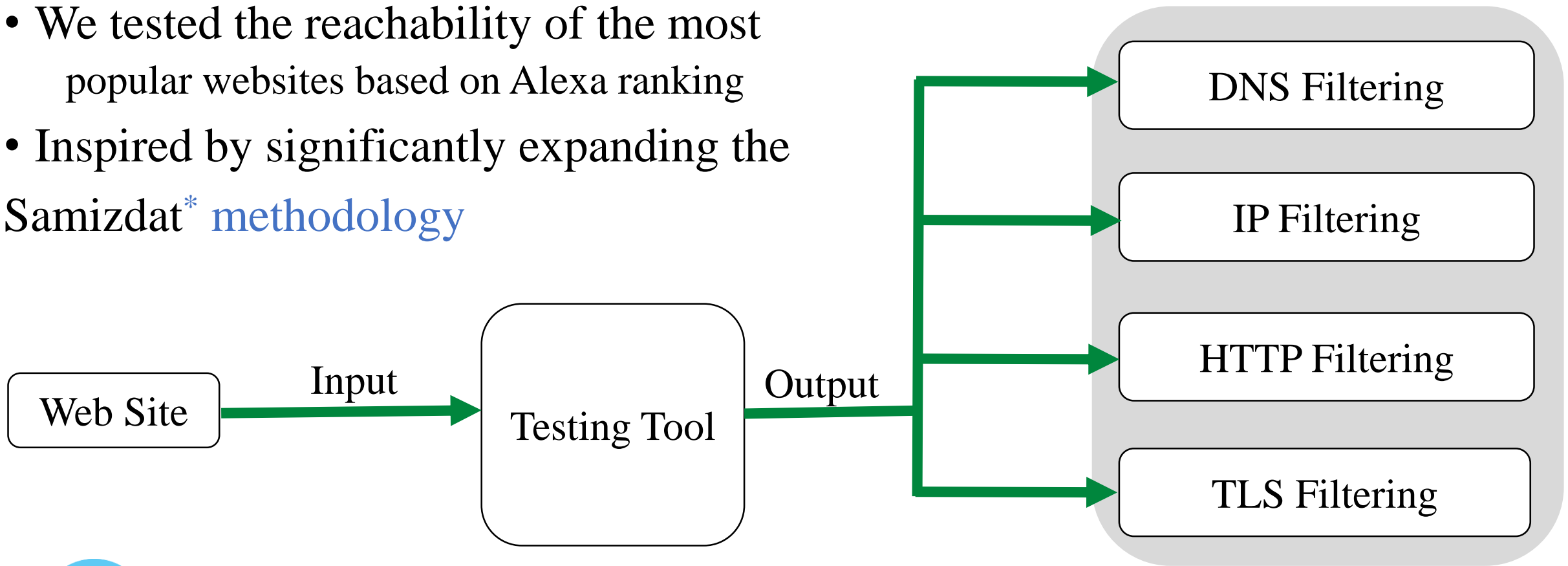
* Z. Nabi, "The Anatomy of Web Censorship in Pakistan," USENIX FOCI'13

Methodology - Sites

- Vantage Points:
  - Riyadh
  - Jeddah
  - Makkah
  - Al-Khobar

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Results -Sites

2018 - 2019 - 2020

| Category	DNS						IP			HTTP			TLS/HTTPS		
	UDP			TCP											
Adult	5	7	3	7	9	5	2	8	8	427	411	410	4	1	1
Arts		5	6	5	6	4	9	11	10	12	10	8	10	7	7
Business	3	10	11	3	8	5	6	13	14	30	26	20	38	29	15
Computers	0	0	0	0	0	0	1	0	0	10	9	8	8	6	3
Games	0	0	1	0	0	0	0	0	0	36	31	30	13	11	11
Global	6	7	7	6	7	7	12	12	12	35	31	28	9	8	6
Health	4	3	5	4	3	2	7	6	5	13	9	7	17	8	2
Home	1	2	0	1	2	1	4	5	4	9	8	8	16	10	7
Kids & Teens	2	1	1	2	1	1	3	1	0	7	6	5	12	6	5
News	0	0	0	0	0	1	1	0	0	21	19	19	20	17	13
Recreation	0	0	0	0	0	0	6	2	1	20	18	16	18	15	11
Reference	0	1	1	0	0	0	0	2	1	5	4	4	6	6	6
Regional	1	1	0	1	1	1	1	3	2	26	25	22	21	20	20
SA	12	12	12	11	12	13	18	18	18	24	23	19	15	15	14
Science	3	0	1	3	0	0	3	1	1	5	3	1	6	5	5
Shopping	1	1	0	1	1	1	1	1	1	46	38	35	48	36	33
Society	0	0	0	0	0	0	4	1	2	20	20	19	18	17	17
Sports	0	0	0	0	0	0	1	0	0	8	4	1	11	9	8

Methodology – Mobile Apps

- We conducted a systematic study on 18 mobile applications
- From 2013-2017, CITC blocked all VoIP call services
- In 2017, CITC announced to lift the ban
- We evaluated their connectivity from 2018 to 2020
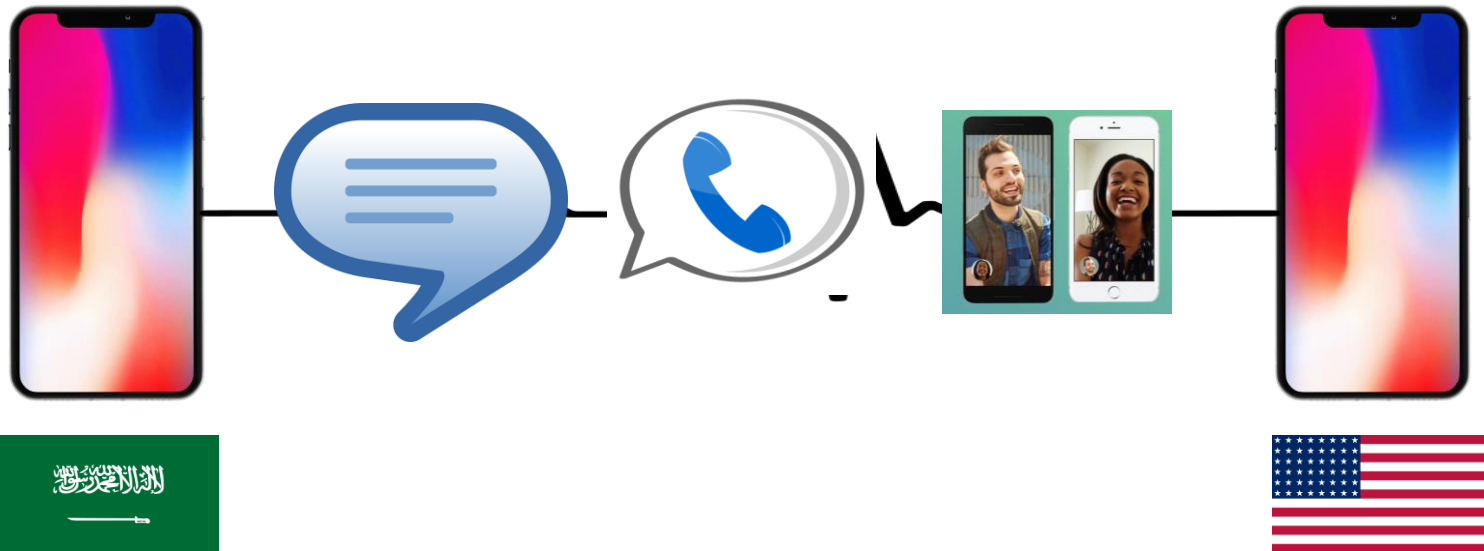
Results- Apps

Application	2013-2017			2018			2019			2020		
	Text	Audio	Video	Text	Audio	Video	Text	Audio	Video	Text	Audio	Video
Viber		Blocked	Blocked									
Tango		Blocked	Blocked									
Facetime		Blocked	Blocked									
YeeCall		Blocked	Blocked									
Skype		Blocked	Blocked									
WhatsApp		Blocked	Blocked					Blocked	Blocked			
Line		Blocked	Blocked									
Telegram	Blocked	Blocked	NA						NA			NA
AllApp		Blocked	Blocked									
Google Duo		Blocked	Blocked									
Houseparty	NA	NA	NA									
WeChat	NT	NT	NT					Blocked	Blocked	Blocked	Blocked	Blocked
SOMA		Blocked	Blocked									
Snapchat		Blocked	Blocked									
Google Hangout		Blocked	Blocked									
Facebook Messenger		Blocked	Blocked									
imo		Blocked	Blocked									
JustTalk	NT	NT	NT									

Security check

1. Find one or more current WeChat users who meet the conditions below(Doesn't need to be WeChat friend)

a. Signed up for WeChat over 1 month ago if they are an international user or over 6 months ago if they are a China Mainland user
b. Hasn't completed "Help Friend Register" for other users in the past month
c. Hasn't been blocked in the past month
d. Has activated WeChat Pay if they are a China Mainland user

2. Request user to scan below QR code using WeChat

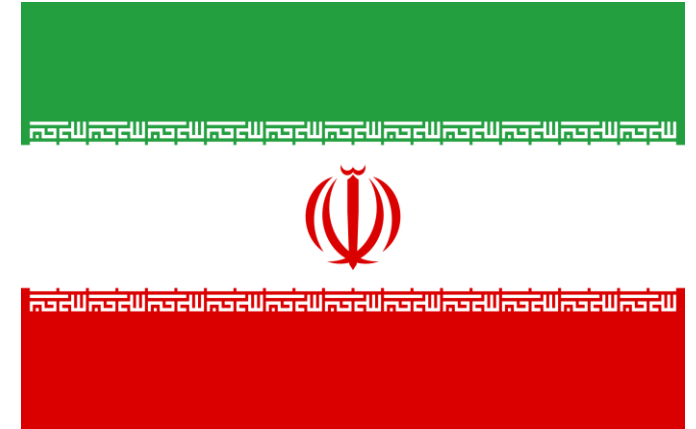# Relation Between Geopolitical Events and *Digital Filtering*

• ISIS-friendly websites were blocked

• Some Qatari, Iranian, and Turkish News websites were blocked

Turkey

Qatar

Iran

Conclusion

- A longitudinal study of *digital filtering* in Saudi Arabia

- Saudi Arabia has made progress towards opening its digital borders

- Tool: fmhharbi@taibahu.edu.sa (for now) – It will be downloadable!

- Observe changes in the filtering policy and connect it with geopolitical events

- Future Work:
  - Server-side filtering

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