

# Iranian Internet Infrastructure and Policy Report

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## INTRODUCTION

Iranian internet users are forced to endure some of the slowest connection speeds in the world. Even President Hassan Rouhani has highlighted the everyday frustrations posed by the agonisingly slow pace of internet browsing, [joking at a press conference](#) that the slow speeds advocated by clerics are enough to send students and academics to sleep long before they open up any research articles. This month's report offers an overview of the primary reasons Iranian internet connections remain so lethargic when compared to those of its neighbours, as well as the issues that result in the massive overinflation of internet costs.

This report also documents all the policy and infrastructure developments that occurred through September 2014, including ongoing debates over the future of mobile chat apps, the extension of 3G and 4G access to the public, and the latest updates on the state's SHOMA and 'Intelligent Filtering' projects.

## INTERNET PRICE & QUALITY IN IRAN

The quality and price of internet access in Iran has been a source of lively discussion (and vocal complaints) amongst internet users in the country. Dissent has manifested itself on Twitter, with Iranian users creating the hashtag [#تندرنک](#) (#slownet) to register their displeasure with glacial internet speeds. Iranian users aren't getting this lousy service cheaply, either: the average cost of internet access has soared sky-high in Iran, dwarfing the not-insignificant average prices in neighbouring countries such as Turkey.

Owing to the severity of the issue, a great deal of noisy criticism has been directed at policy-makers by internet users, the press, and public figures. The latest example comes from the MP Nasrollah Pejmanfard, who [strongly criticised](#) ICT Minister Mahmood Vaezi for his handling of the issue, and accused the government of taking advantage of its monopoly over the internet to profiteer from ISPs and internet users.

**THE INTERNET BANDWIDTH MARKET**

According to the Islamic Parliamentary Research Center (IPRC), the purchase and sale of internet bandwidth from the international market to end users is organised in the structure shown in Figure [1].

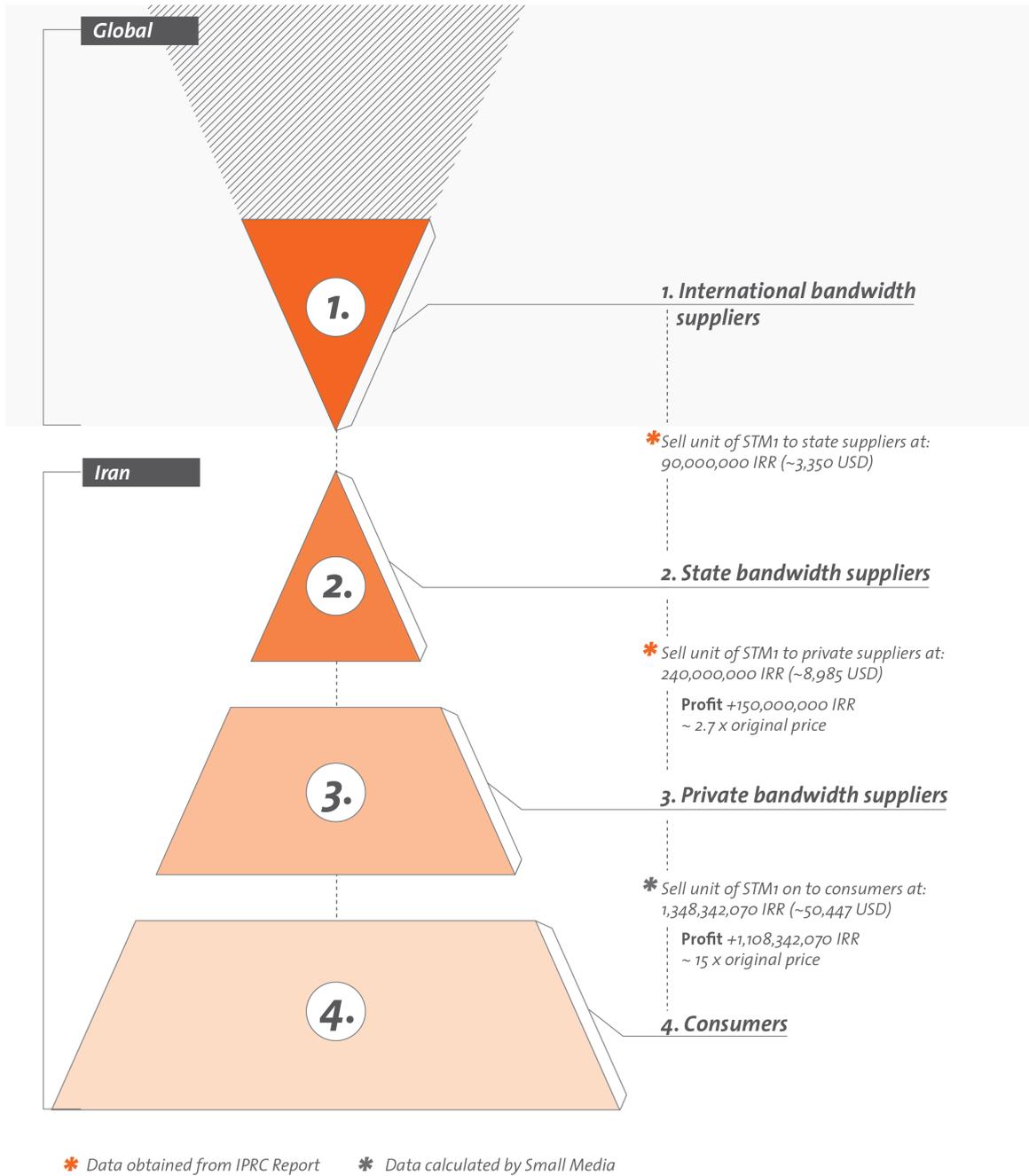


Figure [1] (Source) See Appendix for Small Media data

- **Level 1:** These suppliers are non-Iranian companies that sell the internet bandwidth to Iran's state-owned Telecommunication Infrastructure Company (TIC), which holds exclusive rights as to the sale of bandwidth in the country. According to the IPRC, [Pishgaman Kavir Yazd \(Pishgaman\)](#) has started to buy the internet bandwidth for Iran, due to ongoing international sanctions against Iran. The company is forbidden from selling the bandwidth on to ISPs however, and is only permitted to sell it on to the TIC.
- **Level 2:** The TIC holds exclusive rights to supply local and international bandwidth. Despite this official monopoly, other state bodies ranging from the Ministry of Petroleum to Islamic Republic of Iran Broadcasting (IRIB) have been developing their own local networks.
- **Level 3:** These suppliers are the Public Access Providers (PAPs), ISPs, and the Telecommunication Company of Iran (TCI). These companies purchase internet bandwidth from the TIC and sell it on to companies and private users.
- **Level 4:** Iranian consumers, who purchase their bandwidth from private ISPs and PAPs.

#### THE COST OF INTERNET ACCESS

'Level 1' suppliers can purchase a [Synchronous Transport Module Level-1 \(STM1\)](#) unit from the international market for around 90 million IRR. According to the IPRC, the cost of a single unit of STM1 will have soared to 2.32 billion IRR by the time the bandwidth reaches end users - a 25-fold increase.

Small Media's own research suggests that the figure may be closer to 1.35 billion IRR (see Appendix). Regardless of which estimate is closer to the truth, the fact remains that both the TIC and ISPs are profiteering massively, at the not-inconsiderable expense of Iranian internet users. See Figure [1] for more.

#### WHY IS THE INTERNET SO EXPENSIVE?

There are different reasons that the internet is very expensive in Iran. The important ones are listed below:

- **TIC:** The TIC holds exclusive rights for the sale of internet bandwidth inside Iran. As a result, the TIC holds an effective monopoly over the bandwidth market. As all PAPs and ISPs are forced to buy bandwidth from the TIC, the company may charge as much as it likes.
- **High demand, low supply:** The demand for bandwidth is very high in the country, while its availability remains very low. Table [1] illustrates the massive gap between supply and demand.

Time	Available bandwidth	Required bandwidth
Farvardin 1391 (March/April 2012)	45 Gbps	8500 Gbps
Khordad 1392 (May/June 2013)	65 Gbps	10 Tbps
Aban 1392 (October/November 2013)	83 Gbps	10 Tbps
Esfand 1392 (February/March 2014)	130 Gbps	10 Tbps
Esfand 1394 (February/March 2016)	5 Tbps	>10 Tbps

[Table 1] ([Source](#))

- **Lack of regulation:** Two separate state bodies have been granted responsibility for controlling the price of the internet: Iran's Communications Regulatory Authority (CRA) and the Competition Committee (CC). Due to this confused situation, companies ranging from the TIC through to ISPs are able to selectively enforce regulations imposed by one organisation, by arguing that they are following the regulations of the other.

**INTERNET QUALITY**

Another issue confronting Iranians concerns the quality of their internet connections. Individual users have their connections capped at 128Kbps (although exemptions are granted for business and student accounts). Regardless, many users struggle to achieve even this sluggish speed.

Field research conducted by the IPRC in 2013 found that a 512 Kbps connection provided an average real speed of 10 Kbps. Polls have demonstrated the extent to which low speeds are negatively affecting users' online experience, with around 66% of Iranian users reporting dissatisfaction with the quality of the internet.

Two of the factors influencing the price of internet access in Iran have also adversely affected its quality:

- **Lack of sufficient bandwidth:** As Table [1] illustrates, there is not nearly enough bandwidth to meet growing demand in Iran, resulting in sluggish and unreliable connections.
- **Lack of effective regulation:** According to the CRA, all ISPs must guarantee that the minimum internet speed does not fall below 1/8 of the speed stated in the contract. Thus, a contract offering a 512 Kbps connection must ensure that the speed remains at least 64 Kbps. Regardless, many ISPs struggle to meet even these limited obligations.

Reports conducted by Web Index also suggest massive internal inequalities in internet speeds across Iran. Although it finds average speeds of 8.16 Mbps in Tehran (this figure is boosted substantially by the widespread availability of high-speed university connections), many other major cities continue to endure abysmally poor connection speeds, including Yazd (2.21 Mbps), Hamedan (2.06 Mbps), Tabriz (1.78 Mbps), and Rasht (1.54 Mbps). (Source)

**Survey**

From 30 September - 8 October, Small Media conducted a survey of 1243 Iranian internet users. This survey allowed us to gain some insights into the cost and service quality of internet access in Iran today.

Our study demonstrated that over half of the users surveyed paid over 200,010 IRR (7.48 USD) for their internet connection - see Figure [2]. According to the Statistical Center of Iran (SCI), the average income for an urban-dwelling Iranian family in 1392 (March 2013- March 2014) was 17,030,000 IRR (~637 USD), suggesting that a majority of Iranians spend at least 1.5% of their monthly income on internet access.

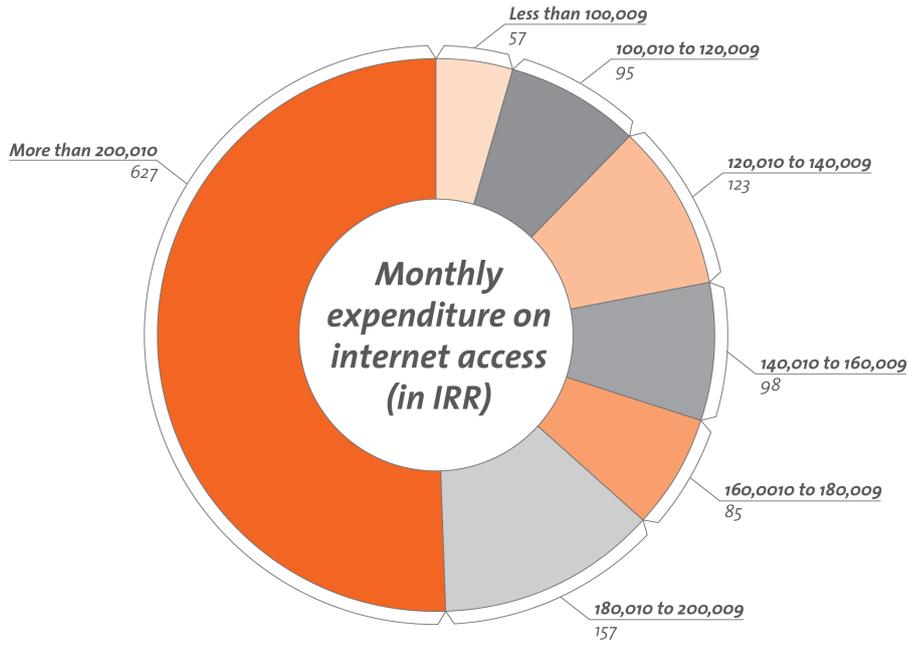


Figure [2]

Interestingly, survey respondents did not seem to be restricted too much by the government's ban on private connections exceeding 128 Kbps - see Figure [3]. This suggests that it is not too complicated to secure high-speed connections via 'student' or 'business' exemptions. Only 10% of respondents stated that their internet packages were at or below the 128 Kbps limit.

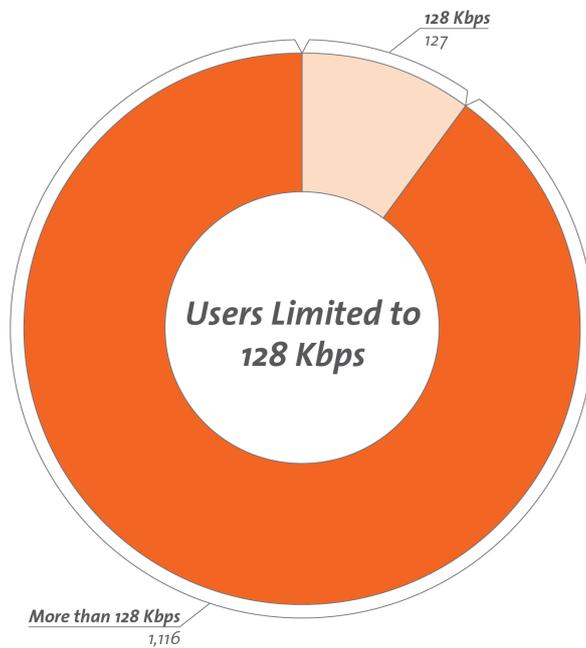


Figure [3]

## CONTENT FILTERING AND BLOCKED SITES

- **September 3:** Dana.ir, a conservative news websites, was blocked for failing to obtain a license from the the Ministry of Culture and Islamic Guidance (MCIG). Access was restored on 4 September. [\(Source\)](#)
- **September 13:** Seyyed Kamal Hadianfar, Head of Iran's Cyber Police (FATA) stated that 135 Facebook pages that advertised prostitution were identified by FATA and their owners were arrested. [\(Source\)](#)
- **September 16:** A blogger who sold 'illegal movies' was arrested by FATA (Tehran Province). According to FATA, selling these movies was the blogger's main source of income. [\(Source\)](#)
- **September 28:** [Salam Noo](#) was blocked by the General Prosecutor of Tehran, without any explanation. The website is close to the minor Islamic Kar Party and was launched in August 2014. [\(Source\)](#)

## STATEMENTS FROM MINISTRIES AND POLITICIANS

- **September 2:** Vaezi said his Ministry always listens to advice from Grand Ayatollahs, and insisted that the Information and Communication Technology (ICT) Ministry is mindful of the cultural impact of 3G and 4G networks on society. In August 2014, the ICT Ministry **issued** permission for Irancell MTN and the Mobile Communication of Iran (MCI) to offer 3G and 4G to their customers, prompting a backlash from clerics such as Grand Ayatollah Nasser Makarem Shirazi. ([Source](#))
- **September 2:** Hamid Shahriari, Secretary of the Supreme Council of ICT (SCICT) and member of the Supreme Council of Cyberspace (SCC) said in a press conference:
  - Hawza is not opposed to technology, but it is worried about the prospect of rapid expansion without a consideration of the impacts upon corruption, and anti-regime activities.
  - Clerics are not opposed to 3G; but are concerned that it might be used to promote immoral content and corruption.
  - The ICT should launch three projects to address Hawza's concerns:
    - a) The National Information Network (SHOMA)
    - b) Identification of internet users in order to protect their privacy
    - c) Filtering illegal and criminal content
  - The 'Cultural Appendix' has been passed by the SCC, with the ICT Ministry writing its own appendix. We have been waiting for more than a month for a response from the government about the Cultural Appendix.
  - The government's 3G policy should be approved by the SCC. Offering 3G to Iranians without the SCC's permission is illegal. ([Source](#))
- **September 3:** Seyyed Hassan Hashemi, Minister of Health and Medical Education, said Iranians trust his ministry and do not pay attention to rumours circulating online about the contamination of bottled drinks with deadly viruses. ([Source](#))
- **September 5:** Ahmad Khatami, a senior member of the Assembly of Experts and Tehran's substitute Friday prayer leader said that the government should offer 'a clean internet' to Iranians. If this is achieved, and if our monitoring infrastructure works effectively, then the government could offer '30G' and '100G' to the people. In the past month, there have been extensive discussions about the expansion of 3G and 4G access in Iran, with some hardliners **warning** of potentially negative societal impacts. ([Source](#))
- **September 5:** Alireza Mirzaei, a member of the SCC, said that government policy on 3G and 4G access is unclear, causing concern amongst a number of SCC members. He also announced:
  - The number of broadband users increased 10,000% after Iranians were granted 3G access on their smartphones.
  - Only 20% of the problems with internet speeds are the result of bandwidth issues; the remainder is due to the geographical distance between users and servers.
  - The TIC generated 70-100 billion IRR (2.6- 3.7 million USD) in revenue by relocating foreign-based servers to Iran.
  - The TIC buys internet bandwidth for 30 million IRR (1,125 USD) and sells it for 300 million IRR (11,235 USD). ([Source](#))
- **September 5:** Lotfollah Sabohi, Deputy of the CRA, appeared on the show Soraya in IRIB 1. His key statements are listed below:
  - Internet censorship in the country has not been optimised, causing various problems. As a result, plans for 'Intelligent Filtering' should be considered more seriously.
  - Iran would like to host Iranian websites inside the country, as doing so would improve

digital security and increase access speeds. Last year, only 10% of Iranian-owned websites were hosted inside the country. The figure currently stands at 34%.

- The idea for the 'Cultural Appendix' was first introduced in 1386 (2007/08), though the government has not had enough time to prepare it until now.
- The TIC is responsible for buying internet bandwidth for Iran, which it then distributes amongst ISPs. (Source)

• **September 6:** Mohsen Jalalipour, Vice President of Iran Chamber of Commerce, Industries, Mines & Agriculture (ICCIMA) stated that Viber helps some Iranian companies increase productivity and reduce expenses. This marks the first occasion that an Iranian official has spoken about the commercial applications of Viber. (Source)

• **September 6:** Mohammad Hassan Enrezari, Secretary of the SCC, stated that only 0.8% of web content is in Persian, whereas 57% of total content is in English. He went on to note that he hopes Iran can increase the value of its exported digital products from 500 million USD to 2 billion USD in the next year. (Source)

• **September 7:** Iranian President Hassan Rouhani criticised the country's censorship policies, and said that the country only knows how to do two things: building walls and filtering - and that it is obvious that whenever something is blocked, someone will produce a circumvention tool. According to Rouhani, Iran cannot solve its online problems in this manner. (Source)

• **September 8:** FATA (Qom Province) announced that most dating websites in Iran operate without a license, and can therefore take advantage of members. FATA did not provide any examples of unlicensed dating sites. (Source)

• **September 9:** Mousa Ghazanfar Abadi, the Vice President of the Judiciary Committee in Iran's Parliament said the Ministry of Culture and Islamic Guidance (MCIG) lacks the authority to block websites; this authority falls under the purview of the Commission to Determine the Instances of Criminal Content (CDICC). On September 3 2014, [Dana.ir](#), a conservative news website was blocked by the MCIG because it had not received a necessary license. (Source I, Source II)

• **September 9:** Deputy ICT Minister Nasrollah Jahangard announced that SHOMA users will receive a unique ID. According to Jahangard, this method will assist the government in its fight against corruption. (Source)

• **September 10:** Hadianfar announced that 65% of cyber crimes committed in Iran are discovered by FATA. Given the inherent impossibility of FATA knowing exactly how many crimes it doesn't know about, this claim seems rather spurious. (Source)

• **September 10:** Seyyed Morteza Hosseini, the Secretary of the Parliamentary Cultural Committee said that the MCIG cannot block websites themselves. They must report any online press violations to the judiciary, and ask them to act in accordance with the law. (Source)

• **September 12:** Hadianfar participated in an interview with Nasim Online. The key points are listed below:

- FATA is capable of monitoring all messages sent from Viber, Tango and WhatsApp.
- FATA is ready to submit evidence suggesting that Iran should block communication apps such as Viber and WhatsApp, however the CDICC retains ultimate responsibility for blocking websites and services.
- FATA does not object to 3G and 4G per se, but believes that Iran requires more comprehensive security infrastructure before offering this kind of technology.
- Iran identified a series of IPs that attacked the country's infrastructure and asked the US to assist in its investigations. However the US said it cannot divulge the names of the people involved. In June 2013, Iran announced that hackers attacked the Ministry of Petroleum. (Source)

• **September 14:** CDICC member Mohammad Reza Agha Miri announced that the filtering committee disagrees with the blocking of any news websites which have not received an MCIG license. According to Agha Miri, the CDICC is the only executive state body that can block a website or service. (Source)

• **September 16:** Regulations governing mass commercial SMS messaging were passed by the High

Commission for the Promotion of Content at the National Cyberspace Center (NCC). The new rules stipulate that the MCIG must create a working group to monitor large-scale commercial SMS messaging. Members of this workgroup will come from:

- NCC
- MCIG
- Law Enforcement Forces of Islamic Republic of Iran
- Intelligence Ministry
- Islamic Development Organisation (IDO)
- General Attorney
- Armed Forces of the Islamic Republic of Iran
- Supreme Council of the Cultural Revolution (SCCR)
- Parliamentary Culture Committee ([Source](#))

• **September 20:** Iran's General Prosecutor Gholam Hossein Mohseni-Ejei sent a letter to the ICT Minister setting a one month deadline for the blocking of WhatsApp, Viber and Tango. According to his letter, the request was prompted by a series of jokes about Ayatollah Khomeini that were circulating amongst Iranians in early September. Mohseni-Ejei also told Vaezi that if his ministry does not act, the judiciary will intervene. ([Source](#))

• **September 21:** Abdolsamad Khoramabadi, Secretary of the CDICC said that if the ICT Minister cannot block specific content on Viber and WhatsApp, then Iran's judiciary system will block the whole platform. Khoramabadi believes that Viber and WhatsApp violate Iran's sovereignty, as the government is incapable of controlling content on these platforms. ([Source](#))

• **September 22:** Ramezani Sobhanifar, a member of CDICC, said that the Filtering Committee had passed an order blocking WhatsApp. However, it has not yet decided what to do about Viber and Tango. ([Source](#))

• **September 22:** Vaezi responded to Mohseni-Ejei's letter, writing that although his ministry strongly believes in blocking criminal content, it does not believe that blocking entire apps or social networks is an effective solution. ([Source](#))



• **September 23:** Ayatollah Seyyed Hashem Hosseini Boushehri, Director of Qom's Hawza said that 'today's war's will be fought in cyberspace' and Iran's enemies have been engaging in a 'silent war' against Iranians via the internet and satellite broadcasts. ([Source](#))

• **September 26:** Seyyed Majid Nourhosseini, Director of Technology Development for SHOMA announced that only 10% of the project has been completed, and that it is still awaiting funds from the ICT Ministry. Additionally, Nourhosseini said that the further development of SHOMA depends on the importation of tools and devices from Germany, South Korea, France and China. ([Source](#))

• **September 27:** Shahriari said that Iran's Judicial System is not looking to block communication mobile apps such as Viber, as the ICT Ministry believes it can manage and monitor these apps. According to Shahriari, the ICT Ministry said they will be able to block specific mobile app content within 3 months. ([Source](#))

• **September 27:** Mohammad Hassan Entezari, Secretary of the SCC, said that the SCC is just a policy-making body, reiterating that the CDICC holds responsibility for internet censorship. In addition, he claimed that he has never used WhatsApp or Viber, arguing that he believes in supporting Iranian versions of these apps. ([Source](#))

• **September 27:** Seyyed Ramazan Shojaei Kiasari, a member of the Parliamentary Cultural Committee announced that Mohseni-Ejei's letter was not an ultimatum from the judiciary to 'eliminate' Viber and WhatsApp. Rather, it was a request to block criminal and offensive content on these apps. ([Source](#))

- **September 28:** Ali Kazemi, a technical expert in the SCICT announced details of the ‘intelligent filtering’ system that Iran is aiming to deploy soon:
  - The system will ‘recognise’ URLs and block a specific part of the address. For instance, it could block a specific page or profile on Facebook.
  - The system will define different access levels for various users. For instance, students will have a specific level of access so that they can conduct research for their papers.
  - The system will analyse videos, images, and audio files, and decide which ones it should block. For example, if a specific page contains an illicit video, the video could be blocked while the page remains accessible. ([Source](#))
- **September 29:** Agha Miri said the ICT Ministry promises to support Iranian social networks and mobile app developers by offering free bandwidth and internet connections. He noted that domestic social networks would cost Iranians 90% less than foreign social networks, owing to the usage of cheap local bandwidth. Agha Miri stated that there are 20 Iranian social networks currently operating in the country. ([Source](#))
- **September 29:** The National Center of Cyberspace (NCC) launched the first ‘intelligent filtering’ software capable of blocking ‘immoral’ content in videos, images and texts. The first version of this software has been used at Shahid Beheshti University’s Cyber Research Center, and the IDO. ([Source](#))
- **September 30:** Khosrow Saljoghi, a board member at the Information Technology Organisation of Iran (ITO) said that SHOMA provides cheap and efficient infrastructure for Iran to store its data. He stated that only 10% of Iranian data is currently stored on SHOMA, but after its final launch, this number would rise to around 80%. ([Source](#))

## CIVIL SOCIETY, PROFESSIONAL ORGANIZATION STATEMENTS

- **September 1:** FATA (Fars Province) issued a warning about buying circumvention tools via different websites. According to FATA, some vendors of circumvention tools are using phishing websites to illegally access the bank accounts of Iranians. (Source)
- **September 2:** Throughout the last week of August and the first week of September, many people used social networks to share jokes about Ayatollah Khomeini; Iran's first Supreme Leader. Sadegh Zibakalam, a Professor of Law and Political Science at Tehran University, claimed that the jokes actually came from ultra-conservatives seeking to put pressure on the Rouhani government. According to Zibakalam, there are three ways conservatives stand to gain by circulating jokes about Khomeini:
  - It gives them an opportunity to complain that the MCIG fails to take action against those who insult the former Supreme Leader.
  - It allows them to justify further censorship of social networks and the throttling of internet speeds
  - It may help attenuate the losses in revenue sustained by telecommunication companies as a result of the presence of Viber and WhatsApp in the market. (Source)
- **September 9:** A series of conservative websites criticised the MCIG for blocking some conservative sites such as Dana.ir due to lack of licenses. According to Masoud Basiri of the Muslim Journalists Institution, although only 299 news websites have licenses from the MCIG, thousands of news websites are active and operate free from Ministry censorship. He added that the MCIG cannot legally block websites, as these powers are limited to the CDICC and Iran's judiciary. (Source)
- **September 13:** Mohsen Torabi, Director of the Native Chat App Project announced that Zobi, an Android-based Iranian version of Viber, will launch in October. According to Torabi, Zobi's server will be located inside the country and the time it takes to send text message between two devices would be 0.5 seconds, compared to the 2-3 seconds it takes in Viber. Torabi predicted that Zobi will have 200 million users by the end of 2017. Previously, authorities have stated that they will not block mobile communication apps until Iranian developers have produced alternatives. (Source)
- **September 15:** ICT expert Ali Akbar Jalali said that social media censorship is in vain, as people always find another way to access prohibited platforms. According to Jalali, Iran's internet censorship policies have damaged the international reputation of Iran, and allowed the international community to view Iran as an enemy of the internet. (Source)
- **September 15:** Fars News Agency published a report about the Iranian mobile phone market. The central points are listed below:
  - Iranians spend 60,000 billion IRR (2.25 billion USD) per year on mobile phones.
  - A poll showed that 40% of people choose mobile phones based on their personal needs, whereas 60% make their choices based on 'competition' with their friends and family.
  - The price of the most high-tech Iranian mobile phone is 5,000,000 IRR (190 USD), whereas comparable non-Iranian phones cost around 10,000,000 IRR.
  - Only 10% of mobile phones on the market are imported legally, whereas 90% are smuggled into the country. (Source)
- **September 16:** Yahoo allowed Iranians to register with the site, having prevented them from doing so for a year. In September 2013, Yahoo changed its sign-up process, asking users to register their phone numbers with their accounts. Iran was excluded due to ongoing US-imposed sanctions. (Source)
- **September 22:** Aliasghar Beheshti, a lecturer at Sharif University of Technology, stated that Iran's 'intelligent filtering' system will not be ready within a month. He argued that blocking specific content on social networks such as Facebook and communication mobile apps such as Viber is

possible, but is a complex and time-consuming process. Beheshti also noted that Iranians typically feel more secure using non-Iranian social networks, when compared with their Iranian counterparts. (Source)

- **September 25:** Twitter CEO Dick Costolo **queried** President Rouhani about his use of Twitter while the platform remains blocked in Iran. A few days later, on 27 September, he **tweeted** that he discussed the blocking of Twitter with Mohammad Javad Zarif, Iran's Foreign Minister. After this tweet, Iranian users on Twitter set up a **campaign** asking Costolo to add Iran to Twitter's country list, which would allow Iranian users to enable 2-step verification for their accounts.

# APPENDIX

## EXPLAINING STM-1 AND CALCULATING THE COST OF INTERNET ACCESS FOR END-USERS

A unit of STM1 = 155.52 Mbps = 155,520 Kbps

Owing to the unclear, and unexplained methodology employed by the IPRC in determining the prices charged by ISPs, Small Media decided to calculate the average cost and profit margins of STM1 ourselves. Our methodology is recorded below.

The TIC sells a unit of STM1 to ISPs and PAPs for 8985 USD (in Tehran). The maximum speed that home users can legally access is 128Kbps.

Number of private ADSL lines that can be supported per unit of STM1:  $155,520 \text{ Kbps} / 128 \text{ Kbps} = 1215$  lines

Cost per ADSL line:  $8,985 \text{ USD} / 1215 \text{ lines} = 7.39 \text{ USD per line}$

An ADSL line can be shared by up to 8 people. Real cost of connection per user:  $7.39 \text{ USD} / 8 = 0.92 \text{ USD}$

This is the actual price of the unlimited Internet bandwidth for end-users, however, the final price charged by ISPs to users frequently exceeds 5 USD, for the provision of limited bandwidth. The following table shows a series of prices from Iranian ISPs, each selling 128 Kbps internet bandwidth.

Company	Price	Bandwidth Cap per month
Shatel	139,000 IRR (5.16 USD)	4 GB
PasOnline	161,000 IRR (5.98 USD)	5 GB
HiWeb	119,000 IRR (4.42 USD)	3 GB

Taking a monthly average of 5.19 USD (138,718 IRR) for a 128 Kbps connection, we can determine the sum of money raised by an ISP from each ADSL line:  $5.19 * 8 = 41.52 \text{ USD}$

ISP Income per line:  $41.52 \text{ USD} * 1215 = 50,446.80 \text{ USD} (1,348,342,070 \text{ IRR})$

Given that ISPs purchase a unit of STM1 for 8,985 USD, they therefore make a profit of 41,492 USD per unit sold to consumers.