# **State of the Internet and Digital Rights in Egypt** (2019-2026)

In the report “The State of the Internet and Digital Rights in Egypt (2019-2026)” an analysis is given of the development and regulation of the internet sphere in the country. The report examines key aspects, including the growth in the number of internet users, the development of infrastructure, speed and quality of access, as well as the dynamics of the internet service provider market.

Special attention is paid to issues of digital rights and freedoms. Legislation in the field of the internet is analyzed, cases of blocking and censorship, as well as the practice of state surveillance. The document also examines the use of VPN services in the context of ensuring anonymity and access to information.

The report highlights significant events that influenced the digital environment of Egypt, including public protests and the adoption of laws that caused wide resonance.

**Disclaimer:** This document was partially generated using several large language models (LLM). The information presented in it is based on the analysis and generalization of data from the indicated sources; however, the process of its structuring, generalization, and presentation was performed using artificial intelligence technologies. It is recommended to use this text as a starting point for further research and to critically verify critically important data against primary sources.

The Arab Republic of Egypt is one of the most dynamic and at the same time contradictory regions in the context of the development of digital technologies and the observance of human rights in cyberspace. Occupying a strategically important position at the intersection of Africa and Asia, Egypt controls the Suez Canal — the most important global transport artery, which also serves as a nodal point for international submarine cable systems connecting Europe with the Middle East and Asia.[1] The country's geographical dominance in the field of global data transit creates a unique background for its domestic policy: the state's desire to become a regional technological hub within the framework of the "Digital Egypt" strategy and the "Vision 2030" program enters into a sharp conflict with harsh measures to control information flows and suppress digital dissent.[1] In the period from 2019 to 2026, Egypt underwent large-scale infrastructure modernization, including the launch of 5G networks and the expansion of fiber-optic networks; however, this technical progress was accompanied by an unprecedented strengthening of legislative oversight and the criminalization of online statements.[5]

# 1. General Information

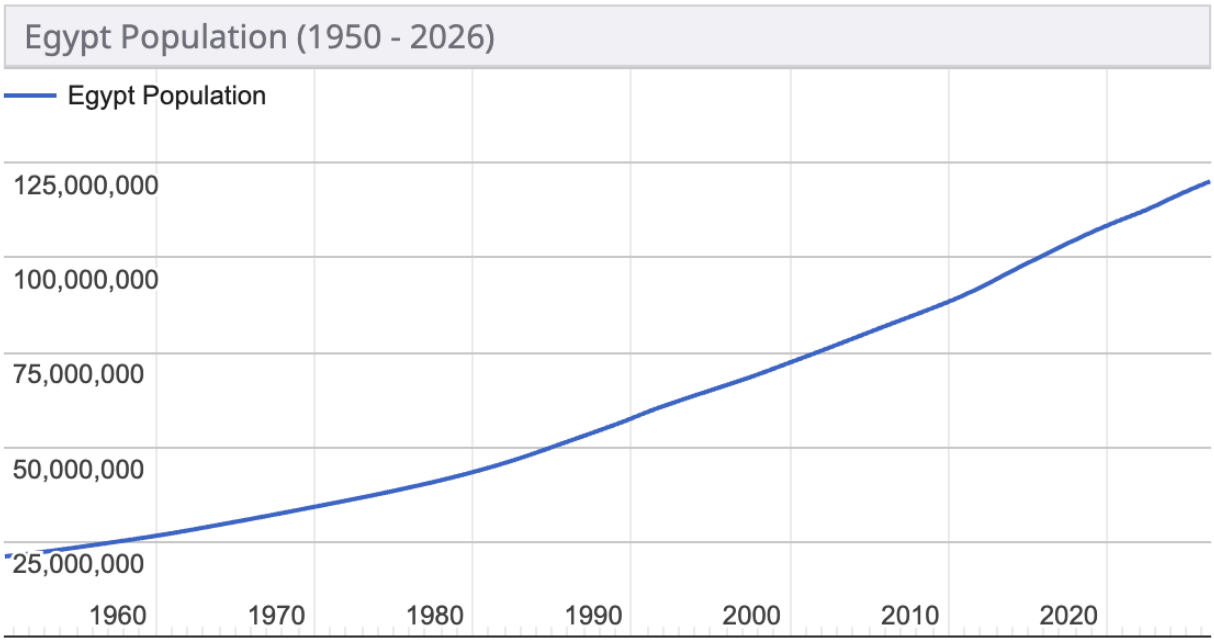
Egypt is located in the northeastern part of Africa and on the Sinai Peninsula in Asia. The country's territory is washed by the Mediterranean Sea in the north and the Red Sea in the east. The overwhelming part of the population and economic activity is concentrated along the narrow valley and delta of the Nile River, which makes up less than 5% of the country's total area, while the rest of the territory is occupied by the Sahara and Libyan deserts.[8]

## 1.1. Population

Egypt's demographic profile is characterized by a high proportion of young people and steady growth rates, which creates significant potential for the consumption of digital services but at the same time generates social challenges. As of the beginning of 2025, the population was approximately 117 million people, having increased by 1.7% compared to the previous year.[8] The urbanization process continues: about 43.4% of citizens live in cities, while the digital divide between urban centers and rural areas (especially in Upper Egypt) remains a significant factor affecting the availability of education and economic opportunities.[5]

The population dynamics confirm Egypt's status as the most populous state in the Arab world. The high concentration of the population in the Nile Delta facilitates the deployment of communication infrastructure in these zones but complicates the provision of quality access in remote governorates such as the New Valley or the Red Sea.[5]

**Graph 1: Dynamics of Egypt's Population (1950-2026)**



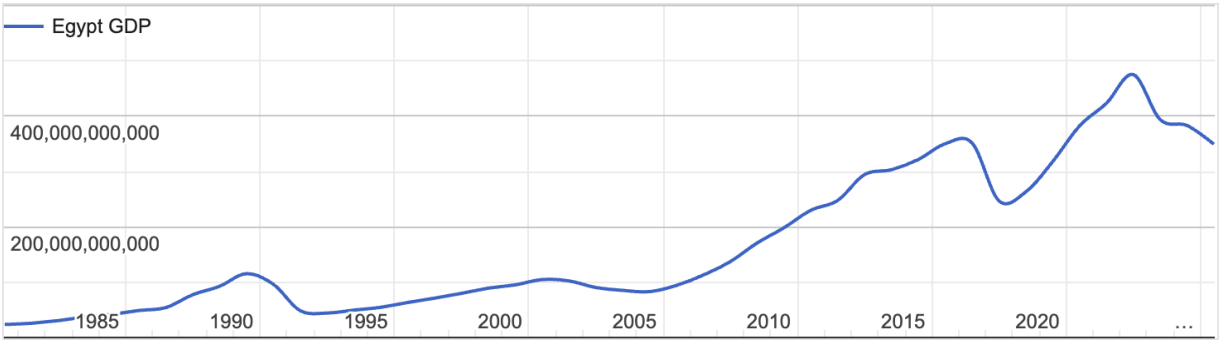

Source: worldometers.info

## 1.2. Gross Domestic Product

Egypt's economy in the period from 2019 to 2026 was under the influence of structural reforms and external shocks. The government actively cooperates with the International Monetary Fund (IMF), carrying out devaluation of the national currency — the Egyptian pound (EGP) — to attract investments and stabilize the balance of payments.[15] Despite the volatility of the exchange rate, the ICT sector demonstrates outpacing growth rates, reaching 15.2% annually and becoming a key contributor to the state budget.[3]

The sharp drop in the dollar expression of GDP in 2024–2025 reflects the consequences of large-scale devaluation of the pound. However, in national currency the economy continues to grow due to the expansion of the services sector, energy, and large-scale infrastructure projects such as the construction of a new administrative capital and the expansion of the Suez Canal.[1]

**Graph 2: Dynamics of Egypt's Nominal GDP (1985-2026)**




Source: worldometers.info

The graph shows a long-term upward trend in Egypt's nominal GDP from 1985 to 2026, with several noticeable fluctuations. Since the early 2000s, the economy has demonstrated steady growth, especially accelerated in the 2010–2015 period, when GDP nearly tripled. The peak was reached around 2022–2023, after which a noticeable decline followed.

The decline in 2016 became one of the most noticeable setbacks on the graph. It was caused by a sharp devaluation of the Egyptian pound in November 2016 (by 48–50% against the US dollar). The Central Bank of Egypt took this step as part of an agreement with the IMF on the provision of a $12 billion loan to overcome an acute currency crisis.

Despite the negative short-term effect (price growth, decline in the population's purchasing power), the devaluation became part of a comprehensive reform program. It allowed the currency market to be cleared, attract foreign investment, and restore external reserves. After 2016–2017, the economy resumed growth, reaching a new peak in the early 2020s.

Overall, the graph demonstrates that Egypt's economy is characterized by high volatility, heavily dependent on external factors (tourism, Suez Canal, energy prices) and periodic currency crises. The 2016 decline was painful but a necessary step for the transition to a more sustainable model of economic development.

## 1.3. Main Economic Characteristics

Egypt's economy is characterized by a high degree of state intervention and a significant role of the armed forces in asset management. The main growth drivers are natural gas production (Zohr field), tourism, remittances from labor migrants, and revenues from the Suez Canal.[7] Structural problems include a high level of public debt (about 85% of GDP by 2026), chronic inflation, and dependence on wheat imports.[16]

In recent years, the government has focused on the “fourth industrial revolution,” investing in data centers and cloud technologies. By 2025, Egypt has become home to more than 126 Tbit/s of international cable bandwidth, turning the country into a global data bridge.[1] However, the devaluation of the pound complicates the purchase of imported equipment for telecommunications companies, forcing them to raise tariffs for end users.[1]

## 1.4. General Political Situation

Egypt’s political system functions within the framework of an authoritarian regime consolidated after 2013 under the leadership of President Abdel Fattah al-Sisi. The 2019 constitutional amendments expanded the president’s powers, allowing him to remain in power until 2030, and strengthened the executive branch’s control over the judicial system.[7] The political landscape is characterized by the absence of real opposition; the largest movement “Muslim Brotherhood” has been declared terrorist and banned.[7]

Legislative power is represented by the House of Representatives and the Senate (restored in 2020). The 2025 elections confirmed the dominance of the pro-government “Nation’s Future” party (Mostaqbal Watan), although the process was accompanied by accusations of the use of administrative resources and “political money.”[22] The administrative division into 27 governorates ensures a rigid vertical of governance, where governors are appointed by the president and are often from security structures.[7] In the conditions of “emergency measures” that have become the norm, human rights and freedom of speech in the digital space are sacrificed to the interests of “national security.”[6]

# 2. Internet

Egypt’s internet segment is one of the largest in the MENA region (Middle East and North Africa). Over the analyzed period, the country has moved from slow copper connections to the active implementation of fiber optics and 5G; however, access to the network remains a tool of state control.[1]

## 2.1. National Domain

Egypt’s top-level national domain is **.eg.** Its management is entrusted to the Egyptian Universities Network (EUN) under the Supreme Council of Universities (SCU). The domain was delegated in the early 1990s and for a long time remained closed to wide registration.[27] In 2010, Egypt became one of the first countries to launch a domain in the national language — **.مصر** (misr), which was perceived as a step toward digital sovereignty and simplification of access for the Arabic-speaking population.[28]

The terms of use of the .eg domain include strict identification requirements: applicants must provide evidence of the presence of a trademark or company registration in Egypt. Registration of a second-level domain directly (for example, name.eg) became available relatively recently; previously, subdomains .com.eg, .net.eg, and .org.eg were mainly used.[27] The EUN rules prohibit the use of domain names that contradict "public morality," religious values, or insult state symbols, which gives the registrar the right to unilaterally cancel the registration.[29]

## 2.2. Number of Users

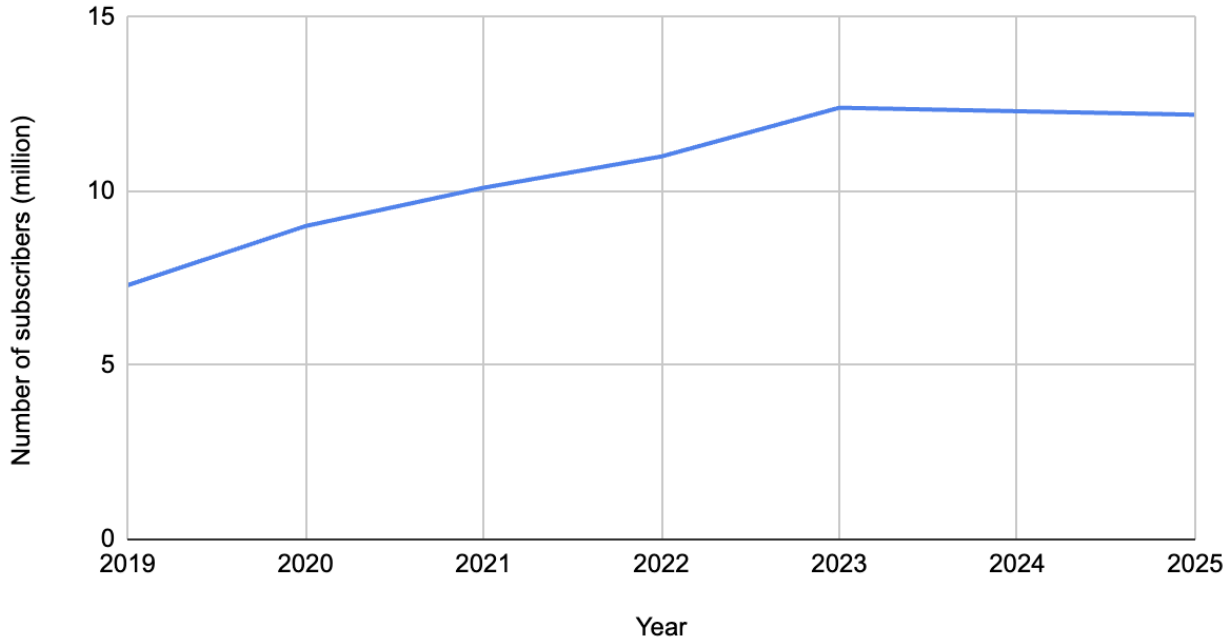
The number of internet users in Egypt demonstrates exponential growth due to the availability of mobile devices and the state's digitalization policy. By the beginning of 2025, internet penetration reached 81.9%, which is significantly higher than the global average.[8]

| Source | Year | Users (million) | Penetration (%) |
|---|---|---|---|
| World Bank | 2019 | 59.0 | 57.3% [12] |
| MCIT Egypt | 2022 | 77.0 | 71.9% [32] |
| DataReportal | 2025 | 96.3 | 81.9% [8] |
| Kepios Forecast | 2026 | 98.2 | 82.7% [34] |

### 2.2.1 Fixed Internet

The fixed internet market has gone through a modernization phase from ADSL to VDSL and FTTH (fiber to the home). The state company Telecom Egypt has completed a large-scale project to replace copper cables, which has allowed increasing the average access speed several times.[2]

**Graph 3: Dynamics of the Number of Fixed Broadband Subscribers in Egypt (2019-2025)**



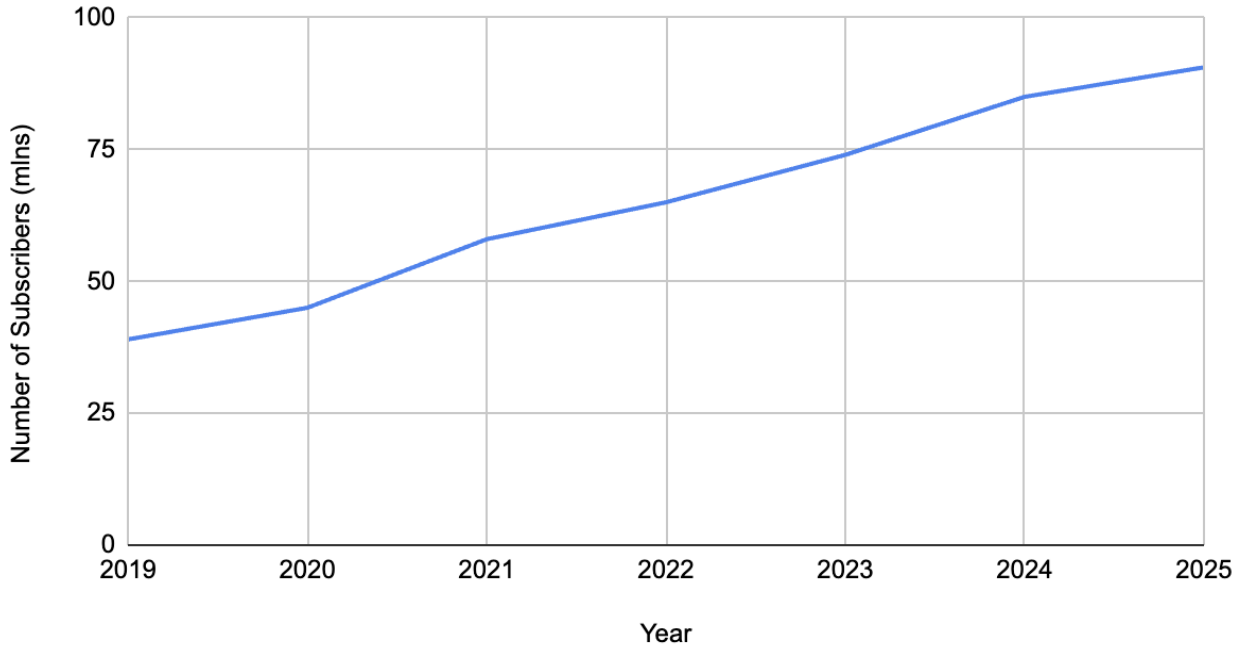

The largest fixed internet providers:

1. **Telecom Egypt (WE):** https://te.eg. Market share about 80%. Actual monopolist of the "last mile" infrastructure.[1]
2. **Vodafone Egypt:** https://web.vodafone.com.eg. Market share ~10%.
3. **Orange Egypt:** https://www.orange.eg. Market share ~5%.
4. **Etisalat by e&:** https://www.etisalat.eg. Market share ~4%.[1]

## 2.2.2. Mobile Internet

Mobile internet is the dominant way to access the network. By 2025, the number of active mobile connections exceeded the population size, which is explained by the use of several SIM cards by one user.[8]

**Graph 4: Dynamics of the Number of Mobile Broadband Subscribers in Egypt (2019-2025)**




The largest mobile internet providers:

1. **Vodafone Egypt:** Market leader with a share of about 44% and a base of 44 million customers.[1]
2. **Orange Egypt:** Second place, share ~26%.[2]
3. **Etisalat Egypt:** Share ~20%, actively implements fintech services.[1]
4. **Telecom Egypt (WE):** About 10% of the market, growing rapidly due to dumping and access to its own infrastructure.[1]

## 2.3. Internet Access Speed and Quality of Services Provided

Egypt has made a qualitative leap in internet speed, moving from the bottom positions in world rankings to the leaders of Africa. This became possible thanks to investments of $4.2 billion in digital infrastructure.[1] However, despite high nominal speeds, the quality of services suffers from network overloads during peak hours and rolling blackouts in 2023–2024.[3]

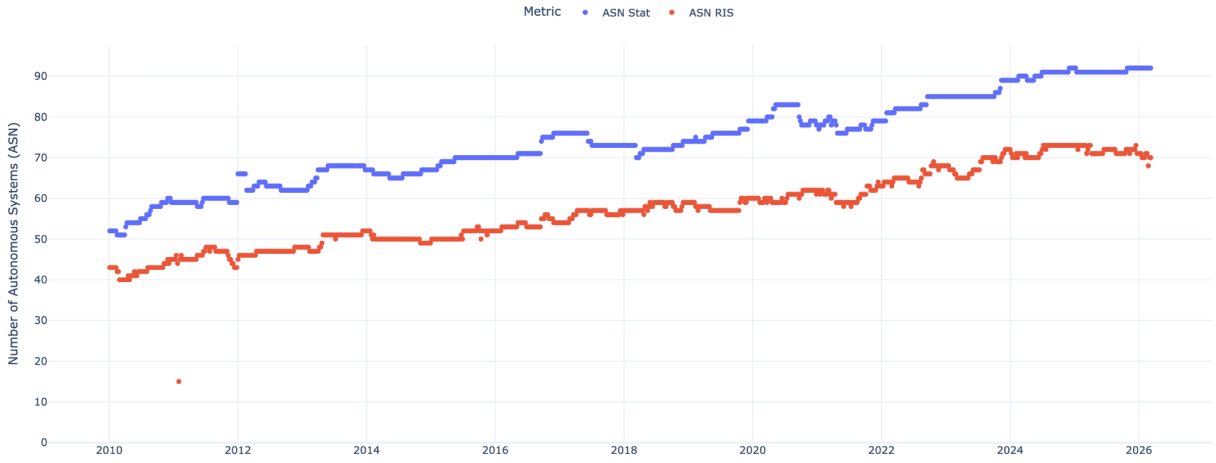
Main speed data (Ookla, 2025):
• **Fixed internet:** median speed 76.67 Mbit/s (growth of 18.8% per year).[8]
• **Mobile internet:** median speed 24.17 Mbit/s (growth of 9.3% per year).[8]
• By August 2025, fixed speed reached 89.84 Mbit/s, and mobile — 56.45 Mbit/s against the background of 5G deployment.[34]

Speedtest and Opensignal studies emphasize that the operator WE (Telecom Egypt) leads in download speed, while Etisalat (e&) is recognized as the best in connection stability (Reliability Experience).[9]

## 2.4. Development of Providers and Autonomous Systems

According to RIPE Stat and AFRINIC data, Egypt demonstrates stable growth in the number of autonomous systems (AS), which indicates the complication of the national network architecture and the emergence of new corporate nodes.

**Graph 5: Dynamics of Autonomous Systems in Egypt (2010-2026)**




The growth in the number of AS in 2024–2025 is associated with the decentralization of traffic within the country and the construction of new traffic exchange points (IXP). However, key traffic is still consolidated in AS8452 (Telecom Egypt) and AS36935 (Vodafone Egypt), which facilitates the state's task of monitoring and blocking content.[1]

Total number of AS per 1 million inhabitants: (92 AS / 120.1 million) × 1 million ≈ 0.77 AS

Active (routable) AS per 1 million inhabitants: (70 AS / 120.1 million) × 1 million ≈ 0.58 AS

This indicator is very low. For a country with a population of more than 120 million, such a modest number of autonomous systems per capita indicates a high degree of concentration in the internet services market.

Despite the noticeable absolute growth in the number of AS over 16 years, the market remains strongly consolidated around several large players, primarily Telecom Egypt (AS8452), which

acts as the main infrastructure operator and backbone provider. Mobile operators (Vodafone Egypt, Etisalat Misr, etc.) and small providers largely depend on it. Most of the remaining AS belong either to state/educational structures or to highly specialized companies.

Overall, the dynamics of the number of autonomous systems confirm that the Egyptian internet market is developing as a centralized and infrastructure-dependent ecosystem, where one or two key operators control the main part of connectivity, and the number of independent networks per capita remains one of the lowest among countries of comparable size.

**Table 1: Top 10 Largest Autonomous Systems of Egypt**

| # | Number of AS | Name | Web Site | Foreign neighbour count | Local neighbour count | Total neighbour count | Foreign neighbours share |
|---|---|---|---|---|---|---|---|
| 1 | 8452 | Telecom Egypt | https://www.te.eg | 88 | 51 | 139 | 63% |
| 2 | 20928 | Noor net | https://www.noor.net/ | 52 | 11 | 63 | 83% |
| 3 | 24835 | Vodafone Egypt | https://web.vodafone.com.eg | 7 | 31 | 38 | 18% |
| 4 | 24863 | Link.net | https://linkdotnet-sa.com/ | 3 | 20 | 23 | 13% |
| 5 | 36992 | Etisalat Misr | https://www.eand.com.eg | 5 | 14 | 19 | 26% |
| 6 | 207740 | Youssef Hamed (ORG-YH13-RIPE) | https://www.amir.ovh/ | 10 | 0 | 10 | 100% |
| 7 | 25576 | AFMIC | https://misrtech.com | 0 | 5 | 5 | 0% |
| 8 | 6127 | Information and Decision Support Center (IDSC) | https://www.euromesco.net/institute/information-and-decision-support-center/ | 0 | 5 | 5 | 0% |
| 9 | 31065 | Egyptian Ministry of Communications and Information Technology (MCIT) | https://mcit.gov.eg/en | 1 | 4 | 5 | 20% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 8524 | The American University in Cairo (AUC) | https://www.aucegypt.edu/ | 1 | 3 | 4 | 25% |

The internet connectivity market in Egypt is characterized by **high concentration** and the dominant role of the state/infrastructure operator.

**Telecom Egypt (AS8452)** is the undisputed leader with **139 connections** (88 foreign + 51 local). This makes it Egypt's main gateway to the global internet. Telecom Egypt controls most of the international submarine cables landing in the country (through points such as Alexandria and Cairo) and acts as the key upstream provider and operator of EG-IX (Egypt Internet Exchange), which it itself launched and develops jointly with AMS-IX. The high share of foreign peers (~63%) reflects its role as a transit hub and owner of international infrastructure through which a significant part of the country's traffic passes.

**Noor Net (AS20928)** ranks second with **63 connections** (52 foreign, ~83%). This is the second most important player in international connectivity — an independent provider with a strong focus on global peering and transit (including its own international MPLS and DDoS protection). Noor actively uses foreign exchange points and upstream from Tier-1 operators, making it an important alternative channel for international traffic, especially for business and corporate clients.

Mobile operators — **Vodafone Egypt (AS24835), Link.net (AS24863), and Etisalat Misr (AS36992)** — show a typical MNO model: a strong emphasis on **local peering** (31, 20, and 14 respectively) and a minimal number of foreign neighbors (7, 3, and 5). This means that they primarily focus on internal traffic (interaction with local CDNs, applications, other operators, and clients), while international access is largely obtained through transit from Telecom Egypt or Noor Net. After the launch of 5G in 2025 and the expansion of fiber backhaul (often through Telecom Egypt), this dependence on local exchange has only increased.

The remaining operators in the top 10 (Youssef Hamed / Amir OVH, AFMIC, IDSC, MCIT, AUC) are small networks with 4–10 connections, often completely or almost completely local (or with minimal international peering). Many of them are government, educational (AUC — American University in Cairo), or specialized networks that rely on upstream from large players.

Additionally, it is worth noting that two autonomous systems directly related to the national traffic exchange point are registered in Egypt: **AS329003 (EG-IX-Management)** and **AS37728 (EG-IX)**. However, both of these systems do not actually participate in global routing — they do not announce routes and are not visible in the public BGP table.

This indicates a weakly developed state of Egypt's IXP. Despite statements about the launch of EG-IX in 2022, the exchange point still operates in a virtually closed mode and does not perform its main function — to provide open and efficient local traffic exchange between participants. The absence of real participation of EG-IX in global routing indicates that the infrastructure remains weak, opaque, and heavily dependent on Telecom Egypt. As a result, instead of a modern open traffic exchange point, Egypt has a formally existing but practically non-working platform.

For example, on **July 7, 2025**, a major fire occurred in the center of Cairo in the **Ramses Central building** (Ramses Exchange) — one of the country's key telecommunications hubs owned by Telecom Egypt.

The incident led to a serious disruption in communication across the country: national internet connectivity, according to the NetBlocks monitoring group, fell to **62%** of the usual level. Mobile communication services, fixed internet, as well as the operation of the stock exchange (EGX) and a number of banking operations were disrupted. The fire affected critically important cables and equipment through which a significant part of national traffic passes.

This incident clearly demonstrated the **high vulnerability of Egypt's internet infrastructure** due to strong centralization. The main part of critically important equipment and traffic exchange points is concentrated in several facilities in Cairo, which makes the entire network dependent on single points of failure. Even a relatively local fire in one building led to a noticeable shutdown at the national level, which emphasizes the weak development of distributed and fault-tolerant infrastructure in the country.

**General Conclusions**

- **Strong concentration of international connectivity:** Almost all global connectivity of Egypt passes through Telecom Egypt (the main controller of cables and EG-IX) and to a lesser extent through Noor Net. This creates a classic "bottleneck" model — one or two operators hold the keys to the outside world.
- **Developed but dependent local exchange:** The high number of local peers among mobile operators indicates good internal peering (including EG-IX and other points in Cairo), which helps localize traffic and reduce costs on international channels. However, without Telecom Egypt or Noor Net, access to global content will deteriorate sharply.
- **Potential risks:** High concentration creates vulnerabilities — technical failures, regulatory interventions, or problems with international cables (many pass through the Red Sea / Suez) can paralyze a significant part of the internet in the country. This is especially relevant in a region with geopolitical risks.
- **Comparison with the region:** Egypt is closer to the "classic" Middle Eastern model with a dominant incumbent controlling international gateways. The development of EG-IX and the

growth of competition in 5G/fiber (2025–2026) gradually mitigate this concentration, but Telecom Egypt remains a central element of the ecosystem.

Overall, Egypt's internet connectivity market is infrastructure-dependent and centralized, with Telecom Egypt in the role of the "national backbone provider" and mobile operators as the "last mile" with strong internal connectivity but limited independent international connectivity.

## 2.5. IPv6 Penetration

The implementation of the IPv6 protocol in Egypt has long been restrained by the use of NAT (Network Address Translation) technologies; however, the exhaustion of the IPv4 address pool in the AFRINIC region has forced operators to begin the transition.[42]

**Graph 6: Dynamics of IPv6 Penetration in Egypt (2015-2026)**


Source: stats.labs.apnic.net

**Conclusion:** The graph shows that IPv6 penetration in Egypt remains at an extremely low level. Despite individual surges in 2019–2020 and a slight increase since 2023, by 2026 the share of IPv6 Capable and IPv6 Preference has stabilized at around **4–5%**.

Such an indicator is so low that it can be considered a **statistical error** and we can talk about the actual absence of mass IPv6 implementation in the country. Egypt significantly lags not only

behind the world leaders (where penetration often exceeds 40–60%) but also behind most countries of the Middle East and North Africa.

The main driver of the slight growth in 2025–2026 was the development of 5G networks and the requirements of the Internet of Things (IoT), which are technically difficult or impossible to effectively implement solely on the basis of IPv4.[1] Nevertheless, without systemic measures on the part of Telecom Egypt and the regulator (BTK) to stimulate the transition to IPv6, the penetration of the new-generation protocol in the coming years will most likely remain at a symbolic level.

## 2.6. Connectivity Index

To assess the level of integration of the internet segment, two key indicators are used, based on the analysis of pairwise connections (peerings) between Autonomous Systems (ASN).

Global Connectivity Index: This index represents the total number of unique connections between each Egyptian ASN and each external (foreign) ASN. In essence, it measures how widely and diversely the internet segment is connected to the rest of the world. The higher this indicator, the more “windows” the country has into the global network.

Local Connectivity Index: This index is calculated as the total number of unique connections between various local ASNs. It reflects the intensity and complexity of the internal internet market, in particular, the activity at traffic exchange points (IXP). A high indicator indicates a developed internal ecosystem that allows efficient traffic exchange within the country, minimizing delays and dependence on external channels for local data.

The analysis of the ratio of these two indices allows us to understand the strategic orientation of the national network: whether it is predominantly self-sufficient or deeply integrated into the global infrastructure.

**Graph 7: Dynamics of Global Connectivity of Egypt's Autonomous Systems (2010-2026)**


The graph shows a **steady and gradual growth** in the international connectivity of Egyptian Autonomous Systems throughout 2010–2026, with noticeable acceleration starting approximately from 2018–2020 and several pronounced peaks (including a sharp surge around 2022–2023 followed by a rollback). The index of the number of foreign neighbors (foreign neighbours), which for a long time remained at a low level of 40–70, began to grow to 100–150 by 2020–2022, reached a peak of about 350+ (probably in 2023–2024), and then stabilized/decreased to 120–180 by 2025–2026 with periodic volatility (declines and rises).

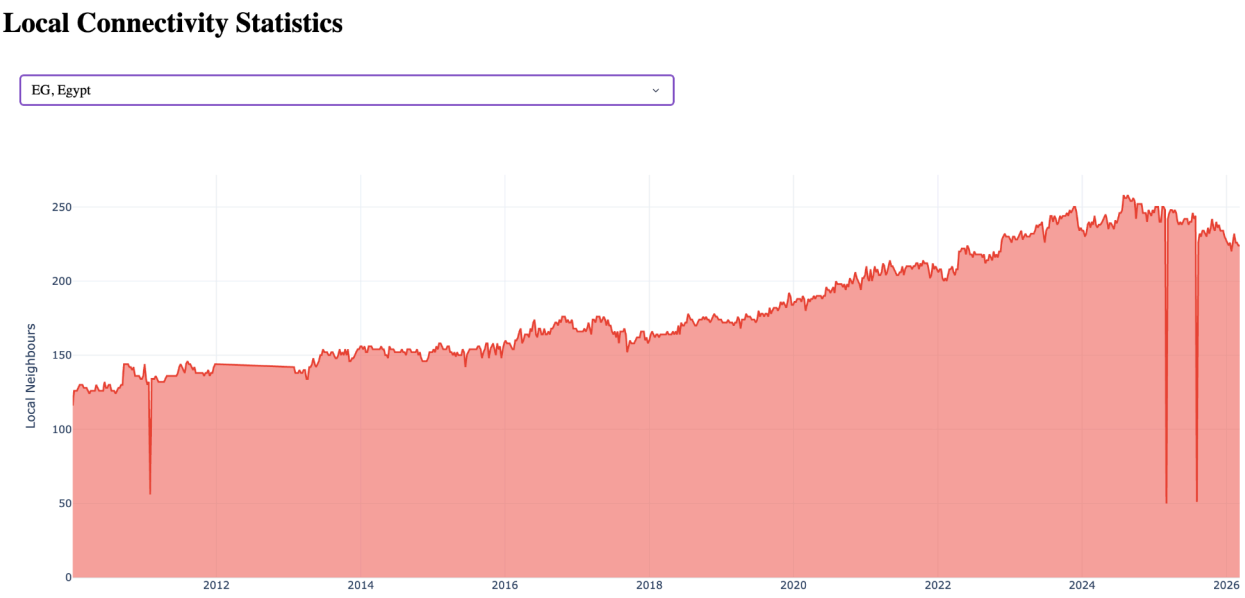
This growth reflects the **gradual strengthening of Egypt's position** as one of the key global digital corridors (digital chokepoint), through which a significant part of traffic between Europe, Asia, Africa, and the Middle East passes (according to estimates >90% of Asia–Europe traffic). The main drivers:

- **Large-scale increase in the number of submarine cables:** Telecom Egypt (AS8452) actively expanded the infrastructure — from 10–14 systems in 2020 to 19–20+ by 2025–2026 (including 2Africa, SEA-ME-WE-6, Medusa, Africa-1, PEACE, IEX, EAGLE, ICE IV, etc.). New landings (in Port Said, Ras Ghareb, Suez, Zafarana, Alexandria) and terrestrial crossing (Red2Med, ICE) provided additional routes and capacity (up to 260+ Tbps transit).
- **Launch and development of EG-IX (in April 2022 jointly with AMS-IX):** the first open exchange point in Cairo attracted international players (CDN, clouds, carriers), increasing peering and reducing dependence on transit.
- **Strategic partnerships and investments:** Agreements with Google, Meta, Cisco, Colt, SubCom, etc.; growth in the capacity of Telecom Egypt's international network by ~40% per year; launch of the WeConnect ecosystem for agile access to cables.

The peaks (especially ~2022–2023) are probably associated with the simultaneous commissioning of several large cables (2Africa terrestrial crossing completed in 2020–2022, Medusa/SEA-ME-WE-6 landings in 2023–2025), which temporarily increased the number of foreign peers. The subsequent rollback/stabilization after 2023–2024 indicates a transition from the phase of **rapid expansion of "windows to the world"** (adding upstream/peering from new cables) to the phase of mastering, optimization, and maintenance of existing capacities (focus on traffic, resilience, local peering through EG-IX).

Egypt's dynamics are gradually accelerating with volatility, reflecting the country's role as a transit hub (not so much a final market as a corridor). After the peak, efforts shifted to route diversification, capacity increase, and integration with global players, which strengthens resilience to failures (including Red Sea cuts in 2024–2025) and positions Egypt as a critical node of the global internet. By 2026, the indicator of ~120–150 foreign neighbors (with peaks higher) confirms the maturity and strategic importance of the Egyptian segment in world connectivity.

**Graph 8: Dynamics of Local Connectivity of Egypt's Autonomous Systems (2010-2026)**




Unlike global connectivity, local connectivity demonstrates **planned and sustainable organic growth** throughout the period 2010–2026, with a consistent increase in the number of unique local neighbors (local neighbours) among Egyptian autonomous systems: from approximately 120–140 in the early 2010s to peak values of about 250+ by 2023–2025, after which some stabilization/rollback to 220–230 by 2026 is observed. The graph shows a smooth upward

curve without sharp jumps (with the exception of individual technical/seasonal declines), which indicates gradual and natural development of the internal market.

Such dynamics indicate the maturity and gradual complication of Egypt's internal internet ecosystem, especially after 2020–2022. However, the growth of local connectivity occurs against the background of an extremely low total number of autonomous systems in the country. High concentration around Telecom Egypt and a limited number of independent players lead to the fact that even with the growth of local peering, the entire ecosystem remains weakly decentralized, insufficiently competitive, and vulnerable to failures in key nodes.

The constant increase in the number of local peerings reflects the active work of the national traffic exchange point EG-IX (Egypt Internet Exchange, launched in April 2022 by Telecom Egypt jointly with AMS-IX as the first open IXP in Cairo). EG-IX, located in the Tier III data center Regional Data Hub (RDH), quickly attracted local and international participants (CDNs such as ACE CDN, Amazon.com, CDN77, etc.), providing direct connections, traffic localization, and growth of the peering community (with 18+ peers and 2.8T+ total capacity according to PeeringDB data for 2023–2025, with a focus on 100G+ ports and 100% IPv6).

Growth is fueled by:

- Increase in internal traffic due to mobile dominance (121 million mobile connections by the end of 2025, >80% of traffic mobile), expansion of fiber and fixed broadband (goal — 50% fiber connections by 2030), 5G deployment (MNO investments ~$2.7 billion since 2019).
- Telecom Egypt's strategy for traffic localization (through EG-IX and colocation), reducing costs for international transit, and improving service quality.
- Development of the data center and colocation ecosystem (RDH + new players such as ECC Solutions, e& Egypt, Raya Data Center), which strengthens local exchange.

Despite the concentration around Telecom Egypt and EG-IX (as the main hub), the dynamics show a transition from a fragmented/dependent on upstream model to a denser internal peering ecosystem. This increases the speed of access to local resources (content, applications, corporate networks), reduces delays, reduces the load on international cables, and strengthens the resilience of the national segment (especially important with frequent Red Sea cable cuts).

Overall, Egypt's internal internet market demonstrates **gradual maturity of the peering ecosystem**, where sustainable growth of local connections (up to 220–250 neighbours) ensures efficient traffic localization and strategic independence from global transit, although in conditions of dominance by one large operator and a relatively young IXP (compared to more developed markets in the region).

**Graph 9: Dynamics of the Ratio of Global and Local Connectivity of Egypt's Autonomous Systems (2010-2026)**


This graph shows that the share of global (foreign) connections in the overall structure of connectivity of Egyptian autonomous systems demonstrates steady and significant growth throughout 2010–2026, with a particularly pronounced rise starting from 2018–2020 and stabilization at a high level after 2022. Until approximately 2018, the share of foreign neighbors fluctuated at a relatively low level (20–25–30%), which reflected the predominance of local traffic and dependence on a limited number of upstream providers. Since 2020, a clear upward trend has been observed: the share grew to 35–45% by 2022–2023, reached peak values of about 50–60% (with individual surges up to 60+% in 2023–2025), and by 2026 stabilized at the level of ~30–38% with periodic fluctuations.

This growth is directly related to Egypt's strategic positioning as a global transit hub (digital chokepoint) for Europe-Asia-Africa traffic (through ~90% of interregional Asia-Europe traffic). The main drivers:

- Large-scale addition of new submarine cables (2Africa, SEA-ME-WE-6, Medusa, Africa-1, PEACE, IEX, Coral Bridge, EAGLE, etc.) with landings in Port Said, Ras Ghareb, Suez, Zafarana, and Alexandria — Telecom Egypt (AS8452) increased the number of systems to 19–20+ by 2025–2026, which sharply increased foreign peering and upstream connections.
- Launch of EG-IX in April 2022 (jointly with AMS-IX) as the first open exchange point in Cairo, which attracted international players (CDN, clouds, carriers), but at the same time strengthened local peering — however, global connections grew faster due to the transit role.

- Diversification of routes (Red2Med, ICE terrestrial crossings) and partnerships with Google, Meta, Cisco, SubCom, etc., which increased capacity and the number of foreign peers.

In Egypt, the share of foreign connections remains high and relatively stable even after the peaks, although with some rollback in 2025–2026 (probably due to peer consolidation and a focus on optimizing existing cables after the introduction of new ones). This indicates that global integration (transit) continues to outpace or keep pace with local development: the internal market (through EG-IX) is growing, but the country remains primarily a transit corridor, not a self-sufficient final market.

Thus, Egypt's internet segment is developing as a highly integrated transit hub with a dominant global orientation: while maintaining growing internal connectivity (traffic localization through EG-IX), it significantly increases the foreign share (~35–40% on average by 2026), which increases capacity, resilience (route diversification after Red Sea cuts 2024–2025), and strategic value in the global network, but also increases vulnerability to failures in key cables.

However, such a model carries serious **political risks**, especially for transit providers. In the conditions of an autocratic regime where the state strictly controls critical infrastructure, transit internet becomes a vulnerable tool of political influence. At any moment, the authorities can resort to a full or partial shutdown of both internal and international traffic — as has already repeatedly happened during political crises. The high share of foreign connections and dependence on several key cables and operators (primarily Telecom Egypt) turn the country into a "digital narrow corridor" that can easily be blocked for political reasons.

# 3. Internet Legislation

Egypt's legal field in the field of the internet is characterized by a combination of modern technological standards and repressive norms aimed at suppressing political dissent. The basis of regulation is made up of laws adopted in 2018 that legalized mass surveillance and censorship.[25]

## 3.1. Principles of Internet Governance

State management of the internet is built on the doctrine of "digital sovereignty," where cyberspace is considered a continuation of the country's physical territory. The main priority is the protection of "national security" and "public order," the definitions of which in the law are extremely vague, which allows the authorities to interpret any criticism as a threat to the state.[6]

**Egypt's Constitution in Article 31** directly enshrines the priority of cybersecurity, indicating that **"cybersecurity is an integral part of the national economy and security system, and**

**the state undertakes to take the necessary measures to preserve it in accordance with the legislation."**

The main instrument of control remains the **Telecommunications Regulation Law No. 10 of 2003** (with numerous amendments). It establishes strict requirements for communication operators:

- Article 21 prohibits the creation or operation of telecommunications networks, the provision of services to third parties, or the implementation of international telephone calls without a license from the National Agency for the Regulation of Telecommunications (NTRA).
- Article 67 allows competent authorities (including security structures and national security bodies) in the event of a "natural disaster, environmental catastrophe, or declaration of general mobilization," as well as in any other cases related to national security, to fully subordinate all communication services and networks of any operator to themselves, and also to summon employees to ensure control.
- Article 82 provides for imprisonment and suspension of the operator's license in case of refusal to fulfill the requirements of Article 67.
- Article 81 establishes a fine from 10,000 to 100,000 Egyptian pounds (1 US dollar is approximately 54.5 EGP), imprisonment, and suspension of the license for failure to comply with Article 64, which obliges telecommunications companies to provide national security bodies and armed forces with accurate data on users, as well as the necessary equipment and resources for monitoring.

A significant influence on the digital environment is exerted by the **Law on Combating Information Technology Crimes No. 175 of 2018 (Cybercrime Law)**. It allows the NTRA to require operators to block websites and content, and also empowers employees of the agency or representatives of national security with the powers of law enforcement agencies. Critics note the excessively broad and vague wording of the law, which allows it to be used for persecution for freedom of expression on the internet.

## 3.1.1. Regulation

Regulation is carried out through a multi-level system of licensing and technical supervision. Communication operators are obliged to integrate their systems with the equipment of special services to ensure traffic interception and storage of metadata for 180 days.[49] The Cybercrime Law No. 175 of 2018 became the foundation for establishing direct control over content and user actions.[48]

### 3.1.2. Regulatory Agencies and Responsible Persons

1. **National Agency for the Regulation of Telecommunications (NTRA):** The key body responsible for licensing, frequency distribution, and quality of service monitoring.
   ◦ **Head:** Eng. Mohamed Shamroukh (Mohamed Shamroukh), Executive President of the NTRA (appointed in April 2024). Profile: tra.gov.eg/shamroukh.[52]
2. **Ministry of Communications and Information Technology (MCIT):** Forms the overall strategy for the development of the sector.
   ◦ **Minister:** Dr. Amr Talaat (Amr Talaat). Profile: tra.gov.eg/chairman.[4]
3. **Supreme Council for Media Regulation (SCMR):** Has the authority to block websites and accounts in social networks with an audience of more than 5,000 people for "dissemination of false information."[5]

## 3.2. Market Monopolization

Egypt's telecommunications market is formally competitive but de facto under the control of a state monopoly. **Telecom Egypt** (WE) is the sole owner of the backbone infrastructure and controls international cable entries.[1] All private operators (Vodafone, Orange, Etisalat) are forced to lease infrastructure from Telecom Egypt, which creates a conflict of interest and allows the state to dictate the technical conditions of operation.[1] Moreover, the government through sovereign funds owns 45% of Vodafone Egypt's shares, which practically deprives the market of real independence from the state.[19]

## 3.3. Internet Shutdowns by Order of the Authorities

Egypt's legislation (Telecommunications Law No. 10 of 2003) grants the authorities the right to take full control of all communication networks in the event of a threat to national security or a state of emergency.[3] The shutdown process is initiated by security services and executed through the NTRA without the need for a prior court decision.[49] The law does not prescribe clear criteria for a "threat," which allows the use of shutdowns to suppress protests, as was the case in 2011 and partially in 2019 (blocking of messengers).[33]

## 3.4. Legislation on "Words on the Internet"

Egypt is one of the countries with the strictest legislation regarding online statements. **Law No. 175 of 2018 "On Combating Crimes in the Field of Information Technology"** further tightened liability for online content:

- Article 30 criminalizes the refusal of companies to block websites or links that, in the opinion of the authorities, pose a threat to national security. Punishment — imprisonment for a term of one year and a fine from 5,000 to 1 million Egyptian pounds.
- Article 25 criminalizes content that "violates the values of the Egyptian family." This vague wording is actively used to persecute bloggers, especially on TikTok and Instagram.
- The interpretation of "fake news" has been significantly expanded. It is understood as any information that diverges from the official position of the state on issues of the economy, internal security, or public health. Punishment — a fine of up to 300,000 EGP (more than $5,500, which exceeds the average annual income of most Egyptians) and imprisonment for up to 5 years.

The authorities openly admit to using specialized software for mass monitoring of social networks in order to identify "inciting" content. Special services regularly monitor Facebook, Twitter/X, TikTok, and Instagram, promptly responding to undesirable publications.

Taken together, these norms create an atmosphere of total control and self-censorship, making almost any critical statement on the internet potentially dangerous for the author.

## 3.5. Legislation on Internet Blockings

The blocking of web resources in Egypt has turned from an exceptional measure into an everyday practice of state content management.[6]

### 3.5.1. Legislation

Article 7 of the Cybercrime Law allows investigative bodies to demand the immediate blocking of any website if its content "threatens national security" or "harms the national economy."[6] These norms are supplemented by the Law on the Regulation of the Press (No. 180 of 2018), which gives the SCMR the right to block online media without a court decision.[6]

### 3.5.2. Blocking Procedures

Technically, blocking is carried out at the level of backbone providers (primarily Telecom Egypt) using DNS filtering and Deep Packet Inspection (DPI) methods.[25] According to the law, the decision to block must be transferred to the court for approval within 24 hours, and the court is obliged to issue a verdict within 72 hours. In practice, this procedure is often ignored or is of a formal nature.[6]

## 3.5.3. Registers of Blocked Internet Resources

In Egypt, there is no official open list of blocked resources. The authorities deny the existence of a censorship system, calling the restrictions “technical failures” or measures to combat terrorism.[6] The list of blocked sites is actually a state secret.

## 3.5.4. Registers of Blocked Resources

Independent organizations are engaged in blocking monitoring:

- **AFTE (Association for Freedom of Thought and Expression):** Maintains the most complete list, having recorded more than 600 blocked domains by 2025.[55]
- **OONI:** Uses volunteer measurements to confirm blockings. Link: explorer.ooni.org/country/EG.[40]
- **Masaar:** Describes the technical mechanisms of blockings (for example, blocking the HTTPS protocol for certain resources) — https://masaar.net/.[41]

## 3.5.6. Development of Blockings

Over the past 5 years, blockings have evolved from a ban on Qatari and Turkish media to mass restriction of access to VPN providers, human rights resources (Human Rights Watch), and tools to bypass censorship (Tor).[40] OONI reports show that Egypt uses equipment from the company Sandvine to inject advertising and malicious code into unencrypted traffic.[40] Conclusion: The blocking system has become comprehensive, opaque, and technically complex, which makes free access to alternative information within the country impossible without the use of advanced bypass tools.[6]

## 3.5.7. Licensing of Websites in Egypt

In Egypt, one of the strictest systems of mandatory website licensing in the region is in force. According to the **Law on the Regulation of the Press and Media No. 180 of 2018** and its executive regulations, almost all websites that provide journalistic, media, or advertising content for a wide audience are required to obtain a license from the **Supreme Council for Media Regulation (Supreme Council for Media Regulation — SCMR)**.

Licensing is required for the following categories of sites:

- News and press sites;
- Media sites that publish video and audio content;
- Commercial sites that place advertising of goods, services, companies, or individuals;
- Sites of commercial companies, professional syndicates, associations, clubs, and other organizations.

**Exceptions** are exclusively personal sites and accounts used for biography, hobbies, or personal opinions, if they do not contain news, media, or advertising content. However, influencer accounts with an audience of more than 5,000 subscribers may be equated to media resources and fall under the law.

**The licensing process** includes:

- Submission of an application through the SCMR (separate forms for individuals and legal entities);
- Confirmation of the minimum authorized capital of the company (at least 100,000 EGP per site);
- Appointment of a chief editor (preferably a member of the Journalists Syndicate);
- Provision of a detailed editorial policy, information about hosting (a copy of the server must be located in Egypt), and sources of financing;
- Payment of the license fee in the amount of 50,000 EGP for 5 years (for state sites — exemption from payment).

The license is issued for 5 years and is subject to mandatory renewal. In case of violation of the license conditions or refusal to obtain it, severe sanctions are provided: fines from 1 to 3 million Egyptian pounds, suspension or cancellation of the license, blocking of the site, and confiscation of equipment.

Such a system actually allows the state to exercise prior control over any public online content and significantly limits the freedom to create and maintain independent web resources in the country.

# 4. Human Rights Violations on the Internet

Egypt systematically violates citizens' rights to privacy and freedom of expression. Digital space is used by the state not only for propaganda but also for active persecution of opponents.[5]

## 4.1. Internet Shutdowns by Order of the Authorities

The practice of full internet shutdowns in the period 2019–2026 has been replaced by a strategy of "surgical" blocking of services:

- **2019:** During the protests in September, the messengers WhatsApp and Signal, as well as the news sites BBC and Alhurra, were blocked.[33]
- **Sinai:** In zones of counter-terrorist operations, communication is turned off on a regular basis to prevent communication between militants, which deprives the civilian population of access to emergency services.[33]

- **VoIP:** Calls in messengers are blocked by almost all providers on a permanent basis to protect the revenues of the state operator and to facilitate the listening of voice traffic.[33]

## 4.2. Criminalization of Statements on the Internet

This is the most common form of repression.

- **Cases of TikTok bloggers (2020-2025):** Hanin Hosam (sentenced to 10 years in prison, later the term was reduced) and Mawada al-Adham received real terms for videos recognized as "immoral." In November 2025, Mohamed Abdel Aati was sentenced to 2 years for "indecent content."[56]
- **Case of Alaa Abdel Fattah: I**n 2021, he was sentenced to 5 years for reposting a publication about torture. Despite international pressure, he remained in custody until the end of 2025.[7]
- **Persecution for criticizing the economy:** In 2024, dozens of users were detained for posts about rising bread and fuel prices, which was regarded as "dissemination of false rumors."[56]

## 4.3. Persecution of Media and NGOs

- **Mada Masr:** The editorial office is subjected to constant persecution. The publication's website is blocked, and its journalists, including Lina Attalah, are regularly detained on charges of working without a license.[5]
- **ANHRI (Arab Network for Human Rights Information):** In 2022, it was forced to cease operations in Egypt due to the impossibility of legal activity and threats to employees.[33]
- **Blocking of human rights reports:** The sites of Human Rights Watch and Amnesty International remain inaccessible to Egyptian users without a VPN.[54]

# 5. Civil Society in the Field of Internet Governance

Civil society in Egypt is in a state of deep crisis. The activities of NGOs are strictly regulated by the 2019 law, which actually prohibits receiving foreign funding without the approval of the security services.[6]

## 5.1. Organizations

Despite the pressure, groups defending digital rights operate in the country and in exile:

- **AFTE (Association for Freedom of Thought and Expression):** afteegypt.org. Provides legal assistance to bloggers and documents blockings.[60]
- **Masaar (Technology and Law Community):** masaar.net. Conducts research in the field of privacy and legislation.[41]
- **Egyptian Human Rights Forum (EHRF):** Based in Paris, lobbies for the interests of Egyptian human rights defenders at the UN level.[18]

## 5.2. VPN and Means of Bypassing Blockings

VPN in Egypt has become a tool of everyday survival for journalists, activists, and ordinary users who want to make audio calls or read independent news.[66]

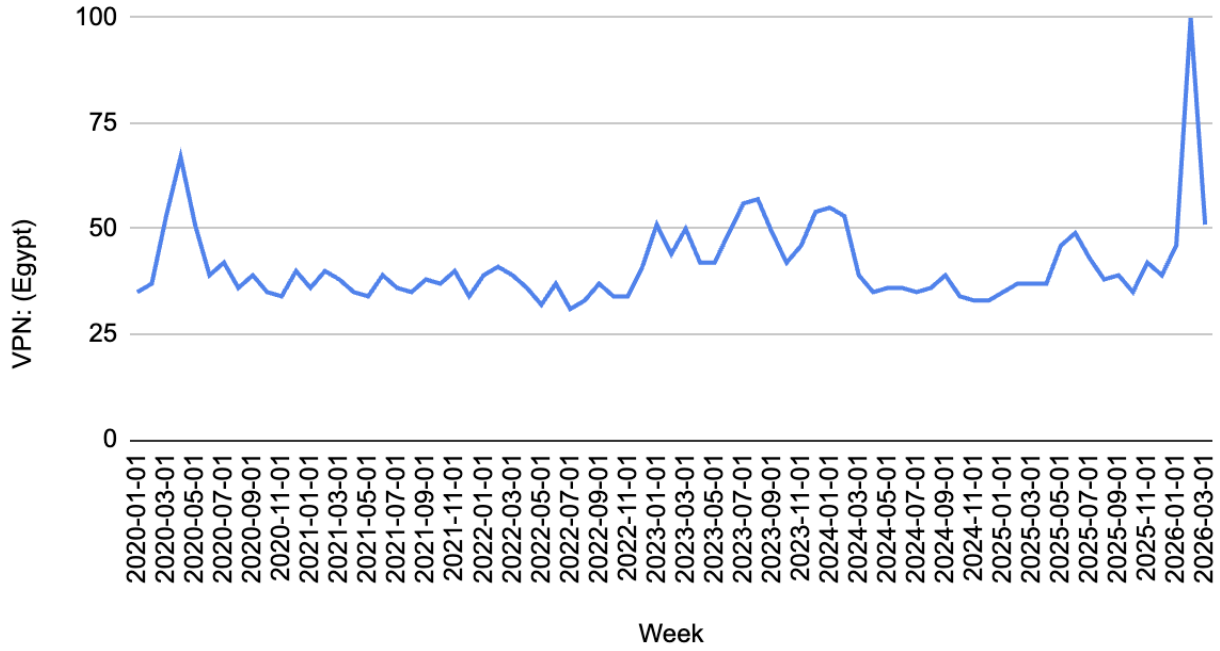
### 5.2.1. Status of VPN Services

The law does not prohibit VPN technology as such; however, **Article 14 of Law No. 175** criminalizes the use of any means to bypass blockings established by the authorities.[67] The sale and advertising of VPN services inside the country are prohibited, and the sites of the largest global providers (NordVPN, Surfshark, Proton) are blocked.[59]

### 5.2.2. Number of VPN Users

Egypt is among the countries with the highest growth in demand for VPN during periods of political crises. By 2025, the share of internet users who regularly use VPN is estimated at 38-42%.[68]

**Graph 10: Dynamics of Search Queries about VPN in Egypt (2020-2026)**




Source: trends.google.com

Based on the graph, it can be concluded that interest in VPN in Egypt generally remained relatively stable at an average level (30–50 units on the Google Trends scale) throughout 2020–2025 with periodic small rises, but events at the beginning of 2026 (probably January) caused a sharp and unprecedented surge in search queries.

**Catalyst of demand: January 2026**

A huge peak (up to 100 units) is directly related to the blocking of Discord in Egypt, which began around January 9–11, 2026. The blocking was carried out at the ISP level (primarily Vodafone and WE/Telecom Egypt), and, according to Proton VPN, led to an explosive growth in registrations: +103% already in the first days, then up to +320% above the baseline level. This occurred in the context of the authorities' efforts to suppress emerging youth-led activism (youth activism in social networks and VoIP applications). Discord, popular among gamers, remote workers, and youth communities for coordination and communication, became a target of censorship. Users massively searched for ways to bypass, which was reflected in the peak of VPN searches. Proton VPN and other services recorded similar surges in usage and downloads.

**Absence of the formation of a "new norm"**

In Egypt, the graph shows a short-term shock at the beginning of 2026, after which the line returns to previous values (about 40–50 with fluctuations). Previous years demonstrate a background level of 30–45 with rare rises (for example, in 2023–2024), probably related to periodic blockings of sites, VoIP, or news resources. This indicates that in Egypt VPN remains primarily a situational tool for bypassing specific, often short-term restrictions, and not an everyday necessity for broad segments of the population. Basic demand remains moderate, without sustainable growth after the peak.

**Blockings and context in Egypt**

Egypt has one of the strictest internet censorship systems in the region: the NTRA and security structures block hundreds of sites (news, human rights, VoIP, many VPN services — according to estimates for 2025, more than 400 VPN/proxy are blocked). Blockings are often targeted — against opposition content, youth activism (including Gen Z on Discord, TikTok, etc.), VoIP (to prevent coordination of protests), or "violation of family values." In 2025–2026, arrests of dozens of young people for online activity, monitoring of platforms, and preventive detentions were observed. VPNs are legal, but their use is complicated (DPI, provider blockings), and many popular services are themselves blocked. The January 2026 incident with Discord is a vivid example of how even the blocking of one platform instantly translates thousands of users into the search for a bypass.

**General Conclusions**

- **Situational and reactive nature of demand:** In Egypt, VPN is a tool "at the moment of crisis" (blocking of a specific platform, VoIP, or social network). After the lifting/weakening of restrictions, interest quickly subsides.
- **High sensitivity to censorship:** Even targeted blockings (Discord, Telegram channels, news) cause a multiple increase in VPN searches, showing the dependence of youth and activists on these platforms for communication, news, and coordination.
- **Risks and trend:** Repeated incidents (2024–2025–2026) gradually increase awareness of VPN among youth, but without transitioning to "constant" high demand. If repression against online activism continues (especially against Gen Z), such peaks may become more frequent, but so far Egypt maintains a model of "episodic censorship" without the formation of a sustainable "VPN culture".

Overall, the Egyptian VPN market looks crisis-reactive and youth-oriented: surges are powerful but short-term, tied to specific blockings, and after each "rollback" they return to a moderate background.

The authorities use DPI to block popular VPN protocols (OpenVPN, L2TP), which forces users to use more complex bypass methods, such as V2Ray or Tor bridges.[40]

## 5.2.3. Cases of Persecution for Using VPN

Cases of persecution for using VPN in Egypt are selective and arbitrary in nature. They most often occur not as part of large-scale campaigns, but pointwise — against activists, journalists, representatives of the LGBTQ+ community, bloggers, and ordinary citizens whom the authorities consider "unreliable."[57]

One of the most common practices has become **checking phones at police checkpoints**. Police officers and national security forces at checkpoints in Cairo, Alexandria, and other large cities routinely require unlocking a smartphone and viewing installed applications. The detection of any VPN application often becomes a sufficient basis for detention. A person may be accused of "intention to commit a crime" (Art. 30 of Law No. 175/2018), "membership in a prohibited group," "dissemination of fake news," or "violation of Egyptian family values."

Specific examples:

- In 2023–2025, cases were repeatedly recorded when young people (mainly from the LGBTQ+ community) were detained precisely because of the presence of a VPN application on the phone. The police interpreted it as "a tool to bypass state censorship" and "evidence of intention to disseminate prohibited content."
- In reports of human rights organizations, incidents are noted when, after checking the phone, a person was accused of "links with terrorist or extremist groups" only because a VPN was installed on the device and blocked resources were visited.
- In some cases, the presence of a VPN became an "aggravating circumstance" in existing charges — for example, when detained for posts on social networks or participation in peaceful protests.

Such a practice creates a powerful intimidation effect: many Egyptians either delete VPN applications before leaving home or use them only at home, which significantly reduces the effectiveness of bypass tools. In conditions of total digital control and broad powers of security forces, the presence of a VPN is increasingly perceived not as a means of protecting privacy, but as potential evidence of "anti-state activity."

This confirms that in Egypt, VPN is viewed not as a legitimate tool for protecting data, but as a threat to national security, which significantly complicates its use even among ordinary citizens.

### 5.2.4. Blocking Monitoring

The main monitoring resources:

- **OONI Explorer** (https://explorer.ooni.org/country/EG): Daily records anomalies in Egypt's networks.[61]
- **AFTE Legal Bulletin** (https://afteegypt.org/en):: Publishes weekly reports on court decisions on blockings and detentions.[60]
- **NetBlocks** (https://boomerang-effect.espivblogs.net/internet-censorship/): Monitors shutdowns and loss of connectivity in conflict regions.[73]

# 6. Conclusion

The analysis of the period 2019–2026 shows that Egypt successfully implemented a strategy of technical modernization of the internet while simultaneously turning it into a powerful tool of authoritarian control. Human rights in the field of access to information are observed only formally, while in practice any independent activity on the network is harshly suppressed through mechanisms of extrajudicial blockings and criminal prosecution.

**Forecast of Development until the End of 2026:**

1. **Neutral option:** Preservation of the current level of repression while further increasing speeds (5G). Blockings will become more targeted and technically sophisticated, aimed at professional VPN and anonymizer users.
2. **Positive option (unlikely):** Partial unblocking of independent media under pressure from the IMF and international human rights organizations in exchange for financial assistance. Legalization of VoIP to stimulate the IT business.
3. **Negative option:** Adoption of a new Criminal Procedure Code (October 2026), which legalizes mass surveillance using AI and facial recognition without prior court sanction. Complete blocking of all popular VPN protocols following the example of China.[22]

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