

11-03-2026

The financial implications of temporary internet restrictions to Mobile Network Operators (MNOs): Evidence from Tanzania's october 29th to november 3rd 2025 event

Issa G. Ahmed

To cite this article: Ahmed, I. G. (2026). The financial implications of temporary internet restrictions to mobile network operators (MNOs): Evidence from Tanzania's October 29th to November 3rd 2025 event. *Priviet Social Sciences Journal*, 6(3), 229–243. <https://doi.org/10.55942/pssj.v6i3.1022>

To link to this article: <https://doi.org/10.55942/pssj.v6i3.1022>



Follow this and additional works at: <https://journal.privietlab.org/index.php/PSSJ>
Priviet Social Sciences Journal is licensed under a Creative Commons Attribution 4.0 International License.

This PSSJ: Original Article is brought to you for free and open access by Privietlab. It has been accepted for inclusion in Priviet Social Sciences Journal by an authorized editor of Privietlab Journals

Full Terms & Conditions of access and use are available at <https://journal.privietlab.org/index.php/PSSJ/about>



The financial implications of temporary internet restrictions to Mobile Network Operators (MNOs): Evidence from Tanzania's october 29th to november 3rd 2025 event

Issa G. Ahmed 

University of Indonesia, Depok, West Java, Indonesia

e-mail: issa.sako@yahoo.com

Received 11 November 2025

Revised 2 January 2026

Accepted 11 March 2026

ABSTRACT

This study estimates the immediate financial effects of state-ordered internet restrictions imposed in Tanzania from October 29 to November 3, 2025, amid post-election protests. It addresses a sectoral gap in shutdown-economics research by quantifying the short-run burden on mobile network operators (MNOs) and the associated implications for mobile-money activity and telecom-linked tax revenues. Employing a convergent mixed-methods design, the study combines an event-study analysis of MNO revenue with document analysis of the regulatory framework. Quantitative estimates apply traffic-baseline and ARPU-severity models calibrated to independent network-measurement and contemporaneous reporting that documented a nationwide disruption and sharp suppression of connectivity during the event window. To reflect telecom revenue mechanics, the modelling distinguishes revenue that is relatively fixed over billing cycles (bundles/subscriptions) from revenue that is immediately exposed (usage-based charges, value-added services, OTT bundles) and incorporates likely short-run credits/compensation and enterprise SLA exposure. Findings indicate a conservative, sector-wide revenue shortfall of TZS 18.204 billion (USD 7.4 million) over the six-day window. The disruption also implies TZS 6–12 billion (USD 2.44–4.88 million) in forgone mobile-money fee income and a direct telecom-tax loss of TZS 6.371 billion (USD 2.59 million); including taxes associated with the mobile-money fee base yields an estimated total fiscal shortfall of TZS 8.8–17.6 billion. The study concludes that internet restrictions constitute material economic interventions and highlights a regulatory gap regarding operator cost recovery, recommending proportionality, protection of essential payment rails, and limited cost-sharing/compensation clauses in licensing frameworks

Keywords: internet shutdowns, digital economy, Tanzania, mobile money, fiscal policy, telecommunications, election disruptions.

priviet lab.
RESEARCH & PUBLISHING



1. INTRODUCTION

By 2025, the Tanzanian digital infrastructure had transformed into core platform of payment and everyday business. The Bank of Tanzania reports that the value of transactions conducted through mobile-money platforms increased to TZS 18 trillion in April 2025 (compared to TZS 14.5 trillion in April 2024) and to TZS 23 trillion by August 2025, this indicates larger growth of the digital payments in the period immediately preceding the October election (Bank of Tanzania, 2025a, 2025b). On communications sector side, the official statistics indicate that there is approximately 56.3 million internet subscriptions in 2025, which underlines that connectivity became an essential enabling infrastructure rather than a luxury service. (Bank of Tanzania, 2025c; TCRA, 2025). In this context, internet connectivity transcends mere communication, acting as a critical payments rail and a growing tax base. This reliance also happened as a narrowing down of the digital civic space in the run-up to the election. Access to X (formerly twitter) was blocked in the beginning of May 2025, with technical measurement documenting interference that varied across internet service providers, while some civil societies and international observers warned that platform-level restrictions and election period disruptions risk undermining participation, information flows and economic activity (Access Now, 2025a; OONI, 2025). Immediately prior to the election period, further restrictions were reported to affect live-streaming features on major platforms including TikTok, amplifying public concern about escalating state control of online communication (Access Now, 2025b). This deep digitalization set the stage for significant economic ramifications when, following a contested general election on October 29, 2025, authorities instituted a series of internet restrictions. These measures, documented as a coordinated collapse of national connectivity, evolved from platform-specific throttling to broader mobile-data disruption. (Access Now, 2025b; Financial Times, 2025; NetBlocks, 2025). The incident exemplifies a global trend where internet shutdowns are increasingly deployed during periods of political unrest, with Africa experiencing a concentration of such events during elections. (Migliano, 2025; Satriawan et al., 2023). The economic cost of these disruptions is well-established in international literature, which identifies channels of loss through reduced digital consumption, interrupted payments, and associated tax shortfalls (CIPESA, 2017; Internet Society, 2025). However, while aggregate, economy-wide forecasts for digital output losses exist for regions like East Africa (The Citizen, 2025), a clear gap remains in isolating and quantifying the specific, immediate financial burden borne by the telecommunications sector itself—the private entities compelled to enact state-ordered restrictions. This study fills that gap by posing the research question: *How did the October 29 to November 3, 2025, protest-related internet restrictions in Tanzania impose short-run financial implications on mobile network operators, the mobile-money ecosystem, and fiscally relevant telecom-related taxes?*

Prior research regarding shutdown economics have been largely emphasizing either (i) macro-level estimates of output and productivity losses, or (ii) legal and rights-based assessments of state control over connectivity. There has been less attention toward the operator-facing, short-run revenue mechanics of state-ordered restrictions particularly in prepaid, bundle-based markets where traffic suppression does not map one-to-one into recognized revenue and to how these sectoral shocks translate into telecom linked fiscal shortfalls in heavily taxed digital economies (de Gregorio & Stremlau, 2020; Tagat et al., 2024; WAGNER, 2018). This study contributes by (a) producing a transparent, short-window estimate of MNO revenue shortfalls that distinguishes relatively fixed bundle/subscription revenues from immediately exposed usage-linked streams, (b) translating the estimated shortfall into bounded fiscal pass-through using statutory telecom taxes, and (c) documenting the policy salience of cost recovery in Tanzania's licensing framework as digital payments scale.

A further complexity in quantifying telecom-sector losses is that MNO revenue does not map one-to-one onto real-time traffic volumes. In the consumer segment, a substantial share of revenue is realized through prepaid bundles and/or monthly or annual subscription packages that may be contractually fixed over the billing cycle, implying that a short-lived disruption may not translate into a proportional decline in recognized service revenue. (Can & Albey, 2017; Wei et al., 2019). Short-run exposure is therefore expected to concentrate in specific lines, including (i) usage-based charges outside package allowances, (ii) value-added services and OTT bundles that depend on consistent data availability, and (iii) customer

credits or compensation for degraded service. In the enterprise segment, where projects are frequently structured as implementation plus annual maintenance, disruptions can additionally trigger service-level agreement clauses and penalties, depending on contractual terms. (Pandita et al., 2021) This study therefore treats the shutdown not as a uniform revenue “switch-off,” but as a shock that affects distinct revenue streams differently in the short term and potentially reshapes demand, trust, and investment incentives over the long term

The question is critically significant for two reasons. First, Tanzania’s legal framework, primarily the Electronic and Postal Communications Act (EPOCA), grants the Tanzania Communications Regulatory Authority (TCRA) wide authority to order service limitations for reasons of national security but is silent on compensating operators for the ensuing revenue losses (John, 2020; Tanzania Media Coalition, 2025). Second, as the nation’s economy becomes more integrated with mobile-money-mediated activity, even temporary connectivity cessations incur escalating financial impacts. By employing a mixed-methods approach to estimate these costs, this study contributes a novel, sector-specific financial analysis to the discourse on internet shutdown economics, highlighting the urgent policy need to reconcile public-order measures with the financial realities of a digitized economy.

2. LITERATURE REVIEW

2.1. The Conceptualisation of Internet Shutdowns.

Internet shutdowns refer to intentional disruption to access to the internet or specific online services, implemented through technical and regulatory controls that render connectivity fully unavailable or materially degraded for a defined population or location. Scholarly work emphasizes that shutdowns operate along a spectrum, from platform blocks and protocol interference to bandwidth throttling and full network blackouts and are frequently executed through state direction to telecommunications intermediaries, raising distinctive governance, legality, and accountability issues (de Gregorio & Stremlau, 2020; WAGNER, 2018). In operational terms, Access Now defines shutdowns as deliberate actions that block or limit internet or electronic communications to control information flows, a framing that aligns with how election-period restrictions are documented by monitoring organizations and civil-society coalitions (Access Now, 2025b). The October 29–November 3, 2025 election period in Tanzania was reported to have been faced with a hybrid system in which there was early throttling of social-media, before a larger-scale disruption of mobile-data occurred when protests intensified (AP News, 2025; Financial Times, 2025; France24, 2025; Nwosu, 2025).

2.2. Global and African Trends

Internet shutdowns have become increasingly common globally, particularly in the context of elections and political unrest (Satriawan et al., 2023). In 2024, the Human Rights Research Center (2025) listed 296 cases of shutdown in 54 countries, almost 280 times higher than 2016. The Guardian reported, in March 2025, that in 2024, 21 shutdowns in 15 African countries were listed, termed by the Guardian as weaponised access. CIPESA (2017) previously demonstrated that 236 days of shutdown in Sub-Saharan Africa in 2015–mid 2017 caused economic cost of TZS 583.02 billion (USD 237 million). The 2025 edition of Top10VPN approximated that TZS 18.917 trillion (USD 7.69 billion) in the worldwide economy had been lost to state interference in 2024, and African instances were concentrated in election times and protests (Migliano, 2025)

Table 1. Documented Economic Impacts of Selected African Shutdowns

Country	Year	Duration	Estimated Economic Impact	Source
Sudan	2019	185 days	TZS 4.674 trillion	(CIPESA, 2017)
Cameroon	2017	100 days	TZS 12.3 billion (USD 5 million)	AInvest, 2025

Ethiopia	2023	1,153 days (intermittent)	Significant sectoral revenue shortfalls	Human Rights Research Center, 2025
Tanzania and Kenya	2024	Multiple incidents	TZS 187.944 billion (USD 76.4 million)	The Citizen, 2025b

Source: Author’s Data

According to [Table 1](#) Tanzania’s 2025 disruption therefore fits a regional pattern: election-linked control of connectivity in an economy that is more connected than in 2020 and thus more vulnerable ([Ecofin Agency, 2025](#); [TCRA, 2025](#))

2.3. Economic effects and Costing methods

The literature converges around three main financial channels ([CIPESA, 2017](#); [Global Network Initiative, 2020](#); [Internet Society, 2025](#)) (1). Lost digital consumption → less traffic → lower data/bundle/OTT revenue; (2). Interrupted digital payments → fewer transactions → lower mobile-money fee income; (3). Tax pass-through → because telecom services are heavily taxed, any revenue not generated also means excise/VAT not collected.

Three costing approaches recur: (1) Traffic–baseline method. $Direct\ shortfall = (Baseline\ traffic - Actual\ traffic) \times Average\ revenue\ per\ GB$; (2) ARPU–severity method $Shortfall = Daily\ data\ ARPU \times Active\ data\ SIMs \times Severity\ factor$; (3) Telecom-share macro method (Top10VPN style): start from national shutdown-day cost and apply a telecom share to isolate the sectoral hit. This study uses (1) and (2) as primary estimates and (3) as a plausibility check.

2.4. Tanzania’s digital context and Regulatory Gap

According to the 2025 statistics of TCRA, the market adoption is great: 99.3 million telecom subscriptions, 56.3 million internet subscriptions, and 1.39 billion mobile-money transactions in Q2 2025 ([allAfrica.com, 2025](#); [Ecofin Agency, 2025](#); [TCRA, 2025](#)). It was in this context, where deep digitalisation was at stake, that the disruption took place. According to the [Tanzania Media Coalition \(2025\)](#), the regulation regime is heavy on compliance and light on compensation: it requires collaboration with TCRA instructions and does not include revenue-compensation in case state-ordered shutdowns are observed ([van Gorp & Maitland, 2009](#))

2.5. Digital Governance and Regulatory Framework.

The Electronic and Postal Communications Act (EPOCA) of Tanzania and its supporting regulations accord wide authority to TCRA to instruct operators on limitations to services in national security or in order (John, 2020). In 2025, alone, the governments have allegedly banned X (May 2025) and subsequently TikTok Live/Instagram Live (October 2025) ([Access Now, 2025b](#); [Reuters, 2025](#)). Operators are obliged to do this even in cases where the orders are political and there is no provision in law to cover the deficits or share the burden with governmental budgets ([MARE, 2020](#))

3. METHODOLOGY

A This study utilized a convergent mixed-methods design to comprehensively assess the financial impact of the internet restrictions. The quantitative strand involved an event-study analysis centered on the six-day restriction period from October 29 to November 3, 2025, using October 15–28, 2025, as a pre-event baseline window. The unit of analysis was licensed Mobile Network Operators (MNOs) in Tanzania, including Vodacom, Airtel, Yas (formerly Tigo), Halotel, and TTCL. Concurrently, a qualitative strand involved document analysis of TCRA directives, media reports, and statements from digital rights organizations like [Access Now \(2025\)](#) and the [Internet Society \(2025\)](#) to establish the legal basis, technical scope, and confirm the absence of compensation mechanisms for operators.

The study setting is Tanzanian mobile communications sector during an election period disruption. The population selected is top three licensed mobile network operators providing national-scale mobile services in Tanzania during the event window, and the sample is the market dominant operators meeting this criterion (Vodacom, Airtel and Yas), yielding a selective sample. Operators without national MNO status (like content-service providers, device vendors, or non-network intermediaries) are excluded because the research question concerns compliance costs borne by licensed network operators. Data collection and document retrieval were conducted in the immediate post-event period (November–December 2025) to preserve contemporaneous descriptions of the restriction scope and timing and to minimize retrospective reporting bias

Six data families were triangulated to ensure robustness. These included official telecom statistics from the TCRA for subscription and traffic baselines; Financial reports from major MNO including Vodacom, Airtel, Yas (Formerly Tigo), Halotel, TTCL, Yas/Axian; mobile-money transaction data from the Bank of Tanzania; network measurement reports from organizations like NetBlocks to precisely time the disruption and gauge its severity; policy documents such as EPOCA and TCRA directives; and peer-reviewed literature on shutdown economics.

To minimize estimation bias in a context where operator-level real-time billing records are not publicly available, the quantitative strand applies (i) triangulation across independent measurement and institutional reporting for timing/scope, (ii) conservative parameter bounds for exposed revenue shares, and (iii) sensitivity ranges for severity assumptions rather than a single-point estimate. The baseline-window design (15–28 October 2025) is intended to approximate normal pre-event conditions immediately before the disruption; the analysis reports conservative and upper-bound scenarios to make the dependence of results on severity assumptions transparent (See [Table 2](#))

Table 2. Data Sources

Data Category	Primary Sources	Use
Subscriptions & traffic	TCRA (2025)	Establish baselines
Financial performance	Operator reports	Daily revenue estimates
Mobile money	Bank of Tanzania (2025)	Fee-shortfall estimation
Restriction timing	NetBlocks, media	Event window & severity
Regulatory context	EPOCA, TCRA, civil society	Compliance/no-compensation finding

Table 2. Key Data Sources and Application

Technical verification of the restriction's timing and severity comes from independent network monitoring organizations. NetBlocks, a leading internet observatory, recorded a near-total collapse of national connectivity beginning on October 29, 2025, with service levels plummeting to approximately 3% of normal levels and remaining severely suppressed through the event period. NetBlocks quantitative data shows Tanzania's internet connectivity dropping to 3% of normal levels during the October 29-31, 2025 restriction period, providing technical corroboration of the shutdown's severity and timing used in this study's analysis ([NetBlocks, 2025](#)) (See [Figure 1](#))

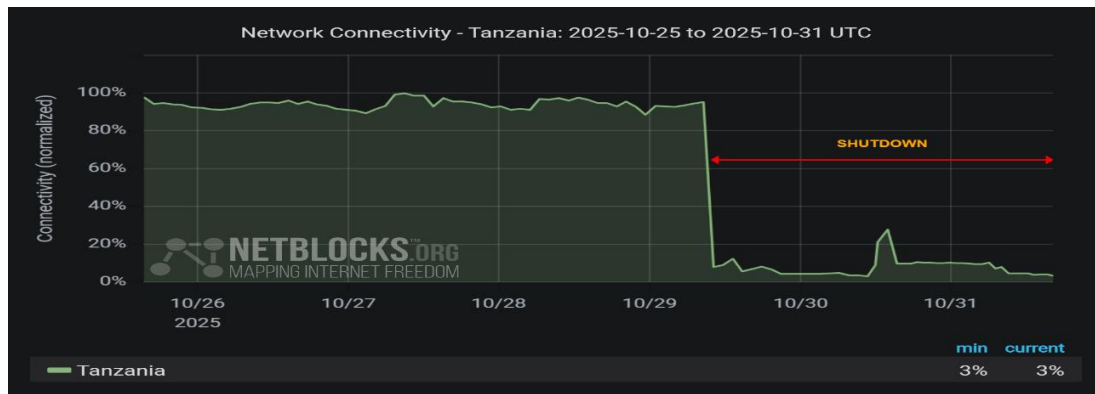


Figure 1. Network Connectivity Measurement During Shutdown Period

Source: NetBlocks, Network Connectivity Data for Tanzania, October 25-31, 2025

To ensure that the event-study estimates reflect telecom revenue mechanics, the analysis distinguishes between revenue components that are plausibly fixed over the billing cycle and those that are directly exposed to a multi-day connectivity disruption. (Asiedu, 2024; Yadav & Sagar, 2021). Consumer revenues are separated conceptually into (a) subscription/bundle-based revenue that is often realized through periodic package purchases and may be less sensitive in the very short run, and (b) variable components such as pay-as-you-go usage, overage charges, and value-added services (VAS) that depend on service availability and are more immediately exposed. (Schuh et al., 2020). Enterprise revenues are treated as a combination of implementation activity and ongoing service/maintenance, with short-run exposure arising from disruption-related service credits or penalties under service-level agreements (SLAs), where applicable. (Alzahmi et al., 2024)

In operational terms, the severity factor applied in the revenue shortfall model is interpreted as a composite parameter capturing both the technical suppression of connectivity (as corroborated by independent network measurement) and the degree to which exposed, usage-linked revenue components are impaired during the event window. (Nazir & Bollen, 2022) This approach avoids assuming that all recognized revenue declines proportionally with traffic, while still allowing a consistent and transparent event-window estimate. (Righi & Ceretta, 2016)

The analytical approach employed three primary calculations. First, the direct revenue impact on MNOs was estimated using a model combining traffic-baseline and ARPU-severity methods, where $Total\ revenue\ shortfall\ (event\ window) = Baseline\ daily\ revenue \times Severity\ factor \times Duration\ (days)$. Severity factors were calibrated between 0.30–0.40 for mixed throttling periods and 0.55–0.65 for periods of high-severity disruption, consistent with the NetBlocks data. Second, the tax impact was calculated by applying Tanzania’s statutory consumption taxes on electronic communication services that is 17% excise duty on electronic communication services and the 18% standard VAT rate, to the estimated revenue shortfall (Tanzania Revenue Authority., n.d.; Tanzania Revenue Authority. (2025, 2025)

Third, the impact on the mobile-money ecosystem (forgone fee income) was estimated by applying a disruption rate (30–35%) and the average transaction fee percentage (0.6–1.1%) to the daily transaction value processed.

This study did not involve direct interaction with human subjects; all data were sourced from publicly available reports and peer reviewed publication, institutional publications, and commercial financial disclosures. Consequently, while conducted in accordance with standard academic ethics regarding data use and citation, specific ethical approval was not required as the research was based on secondary data analysis. (Kelly et al., 2024).

4. RESULTS

4.1. Characteristics of the October–November 2025 Restrictions

Network measurements and technical data provide precise quantification of the restriction's impact. As shown in Figure 1, NetBlocks recorded an immediate and dramatic drop in national connectivity to just 3% of normal levels beginning October 29, 2025, confirming the coordinated nature and extreme severity of the shutdown that forms the basis of our financial impact calculations (NetBlocks, 2025)

Sequence derived from measurements and media: early platform-level throttling on October 29; broadening to mobile-data disruption through November 2; progressive restoration by November 3. (Financial Times, 2025; NetBlocks, 2021; Schloho, 2025). Blocking platform only suppress some traffic; restricting mobile-data on a broader scale suppress a lot more and directly affects MNO revenue.

The real-world impact of these restrictions was immediately felt by millions of Tanzanians and formally acknowledged by the major Mobile Network Operators (MNOs). In the days following the restoration of services, leading operators including Vodacom, Airtel, and Yas issued public notices to their customers, apologizing for the service interruption and outlining compensation plans for unused data bundles. These notices, issued between November 4-5, 2025, officially confirm the restriction period from October 29 to November 3, 2025, directly corroborating the event window of this study.

The disruption was also acknowledged in post-event customer communications reported by these telecommunications media, including Airtel customer notice indicating that affected users with unused data bundles would receive compensation following restoration of service. Such compensation commitments are consistent with the mechanism modelled in this study, which is, that multi-day service suppression can create immediate operator costs through refunds, credits, or extensions even where some bundle revenues are recognized within billing cycles (TechAfricaNews, 2025)

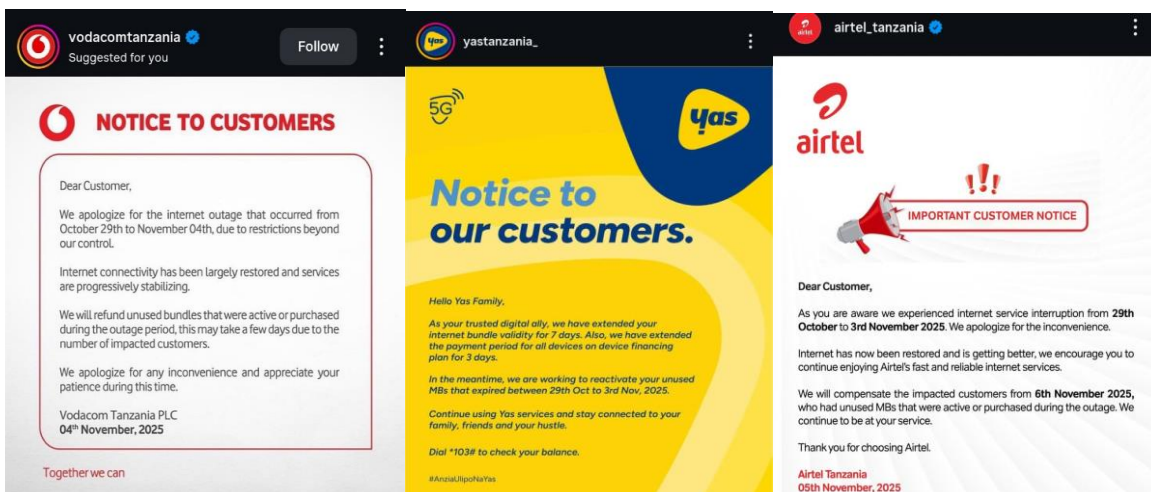


Figure 2. Mobile Network Operator Notices Confirming the Shutdown Period

Source: Vodacom Tanzania PLC, Notice to Customers, November 4, 2025; Yas Tanzania, Notice to Customers, November 5, 2025; Airtel Tanzania, Important Customer Notice, November 5, 2025

Figure 2 shows the unified messaging across competitors attributing the outage to "restrictions beyond our control" underscores the state-mandated nature of the disruption. Furthermore, their commitments to refund "unused bundles that were active or purchased during the outage period" (Vodacom) and compensate for "unused MBs that were active or purchased during the outage" (Airtel) provide tangible evidence of the direct revenue impact analyzed in this study, as these refunds represent immediate financial outlays directly attributable to the shutdown.

4.2. Direct Revenue Shortfall for MNOs

Applying the analytical model to the 2025 market structure yielded direct financial estimates. As summarized in Table 3, the conservative, sector-wide revenue shortfall for MNOs over the six-day period was TZS 18.204 billion (USD 7.4 million). Vodacom, Airtel, and Yas bore the largest shares of this loss, primarily due to drops in data, OTT bundle, and enterprise service revenue. If higher severity factors are applied for peak disruption hours, the potential forgone revenue ranges from TZS 25.092 to 50.676 billion (USD 10.2 to 20.6 million).

Table 3. Estimated Direct Financial Impact on MNOs (29 Oct–3 Nov 2025)

Operator	Estimated Revenue Shortfall	Primary Cause
Vodacom	TZS 7.38 billion (USD 3.0 million)	Drop in data and OTT bundle revenue
Airtel	TZS 6.396 billion (USD 2.6 million)	Forgone mobile data and enterprise SLA income
Yas (Formerly Tigo),	TZS 4.428 billion (USD 1.8 million)	Decline in data and mobile-money-linked fees
Total	TZS 18.204 billion (USD 7.4 million)	—

Source: Author’s Data

In Table 3 There are two aspects, (i) shortfalls are front-loaded-prepaid users do not compensate 30 October usage on 4 November; (ii) the shortfall is on the books of the operators - there is no compensation clause. (Global Network Initiative, 2020; Tanzania Media Coalition, 2025)

The severity factors applied in our revenue shortfall estimates (0.30-0.40 for mixed throttling; 0.55-0.65 for high-severity periods) are directly informed by and consistent with the network connectivity data provided by NetBlocks, which showed sustained connectivity levels at just 3% of normal during the peak restriction period.

The operators' public commitment to customer refunds, as shown in Figure 1, validates the revenue shortfall estimates presented in this study. These compensation programs represent a direct, quantifiable financial cost that operators were forced to absorb. The necessity to extend bundle validities (Yas Tanzania) and process refunds (Vodacom, Airtel) for the shutdown period confirms that the suppression of billable usage was not merely a theoretical calculation but a concrete financial event with immediate balance-sheet implications.

4.3. Impact on the Mobile-Money Ecosystem

The impact on the mobile-money ecosystem was also severe. With an average of TZS 600 billion (USD 243.90 million) processed daily, a 30–35% (see table 4) disruption over six days implies approximately TZS 1.08 trillion (USD 439.02 million) in delayed or failed transactions (Bank of Tanzania, 2025c)

Table 4. Impact on Mobile-Money Transaction Volumes (six-day window)

Platform	Avg. Daily Tx (Pre-shutdown)	Avg. Daily Tx (Shutdown)	Change
M-Pesa	12.5 million	8.1 million	–35%
Airtel Money	9.2 million	6.3 million	–32%
Mixx by Yas	7.4 million	4.9 million	–34%
Total	29.1 million	19.3 million	–34%

Source: Author’s Data

In [Table 4](#) Applying a 0.6–1.1% blended fee to affected value yields TZS 6–12 billion (USD 2.44–4.88 million) in forgone fee income. Some high-value transfers may be deferred, but small, time-sensitive payments are unlikely to be recovered ([Internet Society, 2025](#); [Nwosu, 2025](#)).

4.4. Tax Revenue Implications

The tax revenue implications were direct: applying the 35% combined tax rate (17% excise + 18% VAT) to the conservative operator shortfall resulted in a forgone tax collection of TZS 6.371 billion (USD 2.59 million). Including taxes from the lost mobile-money fee base brings the total six-day fiscal shortfall to between TZS 8.8 and 17.6 billion (USD 3.58–7.15 million) ([Reuters, 2025](#); [TCRA, 2025](#)).

4.5. Interpreting the short-run estimates through telecom revenue mechanics.

The estimated short-run revenue shortfalls should be interpreted as reflecting the disruption of revenue components that are operationally and contractually exposed during the event window, rather than implying that all MNO income streams “stop” when connectivity is suppressed. ([Sasaki et al., 2024](#)). In consumer markets, where bundle or subscription purchases may be locked within billing periods, the most immediate exposures are concentrated in variable and service-contingent streams—such as VAS, OTT bundles tied to active data access, pay-as-you-go usage outside package allowances, and credits/compensation offered to customers for unusable bundles. ([Kim et al., 2019](#); [Palomba, 2020](#)) The public notices issued by leading operators acknowledging the disruption window and outlining compensation plans are consistent with this mechanism: even where periodic revenues are not immediately reversed, operators can incur short-run financial effects through refunds, credits, and the loss of incremental data and VAS sales.

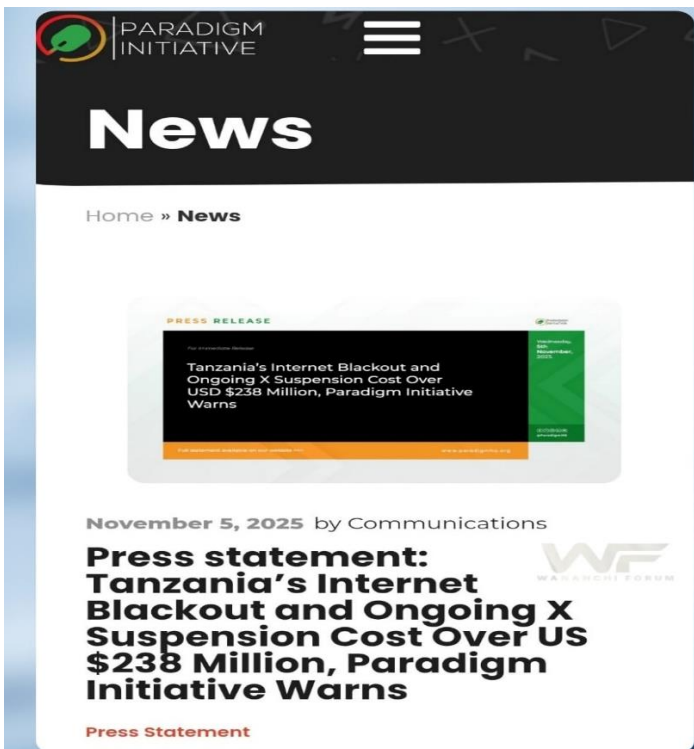
In enterprise markets, the mechanism can differ. Enterprise services are frequently delivered under a mix of one-off implementation and ongoing maintenance obligations. Under such arrangements, the financial implications of a service disruption are partly mediated by contract terms, particularly SLAs. ([De Marco et al., 2016](#)). Where SLAs specify uptime or service continuity, disruptions can generate penalty exposure or require service credits, which may explain why enterprise-linked income is identified as a plausible contributor to the observed shortfall.

This decomposition also clarifies why shutdown impacts may differ between MNOs and digital-content platforms. Digital platforms tend to monetize continuously via advertising, transactions, or real-time engagement, so demand suppression can translate quickly into foregone revenue. By contrast, MNOs operate an infrastructure-heavy model with a larger share of revenue realized through periodic packages and contract structures. The immediate financial burden is therefore expected to be non-uniform, with the short-run estimate capturing concentrated effects in exposed revenue lines, service credits, and ecosystem-linked fees (including mobile-money-related activity). ([Kim et al., 2019](#); [Mortazavi et al., 2020](#)).

5. DISCUSSION

5.1. Interpretation of Findings

The findings demonstrate that in an economy as digitally advanced and mobile-money-dependent as Tanzania’s, internet restrictions function as a profound economic intervention, not merely a tool for information control. ([Chowdhary et al., 2024](#); [Internet Society, 2025](#)). The six-day disruption was sufficient to erase billions in billable telecom traffic and associated fiscal activity. This study’s sector-specific estimates align with and are contextualized by broader assessments, such as the Paradigm Initiative’s (2025) press statement which estimated the total economic impact of the blackout and related platform suspensions at over TZS 585.48 billion (USD 238 million) for Tanzania’s economy. Our quantified losses for the telecom sector thus represent a critical component of a wider economic disruption affecting digital commerce and productivity nationwide (See [Figure 3](#))



Paradigm Initiative's press statement from November 5, 2025, contextualizes the telecom sector losses within the wider economic damage caused by the internet restrictions, estimating a total economic impact exceeding USD \$238 million

Figure 3: Broader Economic Impact Assessment.

Source: *Paradigm Initiative, Press Statement, November 5, 2025*

This broader estimate aligns with our findings, suggesting that the revenue shortfalls identified for MNOs and the mobile-money ecosystem were merely one component of a much larger economic disruption affecting digital commerce, fintech operations, and overall productivity across the Tanzanian economy (Shao et al., 2023).

The results critically engage with the existing literature on shutdown economics. The three financial channels identified in prior research—lost digital consumption, interrupted payments, and tax pass-through—are vividly illustrated in the Tanzanian case (CIPESA, 2017). However, this study extends the literature by applying these conceptual channels to produce a granular, operator-level financial assessment within a specific, high-stakes political context. The operator's public commitment to customer refunds validates the revenue shortfall models, transforming theoretical estimation into documented financial reality. This tangible cost was borne entirely by the private operators due to a significant regulatory gap: while EPOCA mandates compliance with TCRA directives for national security, it contains no provision for compensating operators for the resultant revenue losses (Tanzania Media Coalition, 2025; van Gorp & Maitland, 2009). This privatisation of compliance costs poses a long-term risk to network investment and digital growth.

Under the telecom revenue dynamics and regulatory incentive mechanisms, the short-run burden emerges because restrictions selectively suppress the streams that are both usage-contingent and immediately cash-sensitive (incremental data/VAS sales, time-sensitive enterprise service delivery, and post-event compensation), and the compliance cost of the public-order intervention is shifted to private infrastructure providers. This pattern is important for investment returns because the regulatory environment imposes compliance without a clear cost recovery mechanism; disruptions will increase the perception of policy risk and the returns to investment are diminished, especially where digital money transactions are growing. However, there are other alternative explanations qualify the interpretation: demand for telecom services may also fall because curfews and violence suppress consumption generally, some transactions may be deferred rather than losses, and substitution toward voice/SMS or offline

channels may partially offset revenue losses. Hence, the results can be understood as the counterfactual short-term losses due to the restriction window and not as a complete causal decomposition of the series of political and economic events.

5.2. Policy Implications

The implications are both practical and policy-oriented. Beyond operator balance sheets, the results have important implications for financial inclusion and welfare in a digitizing economy. Indeed, if the values of mobile money transactions are considered in the tens of trillions of shillings every month, then temporary connectivity disruptions can affect routine household transfers, small business turn over, as well as time-sensitive payments that are particularly important in an informal economy and cash constrained settings, thereby magnifying the effects of disruptions on digital services accessibility during political stress events while confirming existing results on the negative impact of disruptions on the economy, which includes magnifying vulnerability (Bank of Tanzania, 2025a; Tagat et al., 2024)

Firstly, the research underscores that mobile-money platforms have evolved into critical economic infrastructure. Consequently, future governance frameworks should, where security considerations allow, explore mechanisms to whitelist or protect payment and settlement rails during restrictions to minimize wider economic contagion. (Ali et al., 2020; Demirguc-Kunt et al., 2018)

Secondly, the principle of proportionality is financially material; as our analysis suggests, broad mobile-data disruptions are far more costly than targeted platform blocks (Tanzania Media Coalition, 2025)

Finally, there is a compelling argument for policy reform. Licensing frameworks should be re-examined to include limited compensation clauses or cost-sharing mechanisms for state-ordered disruptions, particularly to protect smaller operators and maintain investor confidence in the digital sector (Rønn & Lippert-Rasmussen, 2020)

The international relevance of this study is clear: as nations worldwide deepen their digital transformation, the tension between state security prerogatives and the financial integrity of private digital infrastructure will only intensify. This Tanzanian case offers critical insights for regulators, operators, and scholars grappling with this global challenge.

5.3. Recommendations

First, Financial-services continuity protocol: Regulators including TCRA and the Ministry responsible for communication should add a rule to telecom licenses. This rule would treat services such as USSD and mobile money as “essential,” just like hospitals or firefighters. This means that during a crisis, these services should be kept on. Telecom companies and the government would agree on clear steps for this in advance, so everyone knows what to do.

Second, Cost-recovery rule: TCRA and the Ministry of Finance which are the regulators here, should establish a limited, auditable cost-sharing mechanism if a written order forces a business to restrict its services. To qualify, the business must show proof that it gave refunds to their customers and must prove exactly how long it was disrupted. This whole process must have clear limits and be open for checking by auditors.

Third, Post-facto Transparency Reporting: after any action is taken, the government must publicly explain what they did. They have to say what was limited, when it happened, why it was legally allowed, and how it was done. They also must fill out a simple, standard form about the financial costs. This clear reporting will help investors trust the system and let everyone learn from what happened to make better rules in the future.

Fourth, Resilience and redundancy investments: Regulators should require and fund Mobile Network Operators to implement targeted network resilience measures, ensuring essential payment services remain available during partial outages while preventing unfunded mandates.

6. CONCLUSION

This study concludes that the internet restrictions in Tanzania from October 29 to November 3, 2025, constituted a significant financial event with multi-layered economic costs. In a conservative estimate, mobile network operators missed TZS 18.204 billion (USD 7.4 million) in billable revenue, the mobile-money ecosystem lost TZS 6–12 billion (USD 2.44–4.88 million) in fees, and the government forgone TZS 8.8–17.6 billion (USD 3.58–7.15 million) in tax revenue—all within a six-day window. These costs were imposed without any statutory means of compensating the private operators who complied with the state order. As Tanzania's digital transformation deepens, the opportunity cost of blanket or semi-blanket shutdowns will escalate. Therefore, future digital governance frameworks must evolve to ensure restrictions are more targeted and proportionate, explore protections for essential financial service rails, and formally acknowledge the financial implications of state-mandated disruptions on private actors. Failure to address this regulatory gap risks jeopardizing network investment, raising the country's risk premium, and ultimately stunting the very digital economy the state seeks to regulate.

This study has limitations that bound interpretation. First, it uses secondary publicly-disclosed data and modelled counterfactuals as opposed to operator-level real-time billing data. This limits accuracy in breaking down the bundle revenues compared to the exposed usage-based streams. This constrains precision in decomposing bundle revenues versus exposed usage-based streams. Second, the event window coincides with curfews and unrest, so demand-side suppression and behavioural substitution may confound attribution even where the timing of restrictions is well documented. Third, the design is short-run and cross-sectional, limiting inference about longer-term effects on investment, churn, or trust. The limitations of this study can be met in future studies through the application of operator microdata and longer panel to examine the post-event investment and customer response, comparative designs across jurisdictions with varying cost-recovery rules, and quasi-experimental strategies to isolate the effects of restriction on events and contemporaneous political shocks.

Future research could build on this study by conducting longitudinal analyses of operator investment patterns post-disruption, comparative studies of regulatory frameworks across different jurisdictions, and deeper assessments of the micro-level impact on small businesses and individuals reliant on digital platforms during shutdowns.

Ethical approval

Not Applicable

Informed consent statement

Not applicable.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data presented in this study are available on request from the corresponding author due to privacy reasons.

Funding

This research received no external funding.

Notes on Contributors

Issa G. Ahmed

<https://orcid.org/0009-0004-2613-6528>

Issa G. Ahmed is affiliated with Universitas Indonesia, Depok, West Java.

REFERENCES

- Access Now. (2025a, May 21). #KeepItOn in Tanzania: Restore access to X now. Press release. <https://www.accessnow.org/press-release/keepiton-in-tanzania-restore-access-to-x-now/>
- Access Now. (2025b, October 28). #KeepItOn: Government of Tanzania must ensure unrestricted internet access throughout upcoming elections. <https://www.accessnow.org/press-release/keepiton-tanzania-2025-elections>
- AInvest. (2025, July 11). Internet shutdowns cost Africa \$7.69 billion in 2024. <https://www.ainvest.com/news/internet-shutdowns-cost-africa-7-69-billion-2024-2507>
- Ali, G., Dida, M. A., & Sam, A. E. (2020). Evaluation of key security issues associated with mobile money systems in Uganda. *Information*, 11(6). <https://doi.org/10.3390/info11060309>
- allAfrica.com. (2025). Tanzania hits 99 million subscriptions mark. <https://allafrica.com/stories/202510200243.html>
- Alzahmi, W., Al-Assaf, K., Alshaikh, R., & Bahroun, Z. (2024). Strategic integration and organizational success: A holistic review of ERP implementation factors. *Industrial Engineering and Management Systems*, 23(4). <https://doi.org/10.7232/iems.2024.23.4.548>
- AP News. (2025, October 31). Protests in Tanzania spread after a disputed election, with the military on the streets. <https://apnews.com/article/f3727b56c50c256d2d083632594aa5e6>
- Asiedu, E. M. (2024). Incidents and impacts on operator revenue in the telecommunications sector: A multiple case-study approach. *Journal of Telecommunications and the Digital Economy*, 12(1). <https://doi.org/10.18080/jtde.v12n1.852>
- Bank of Tanzania. (2025a). *Monetary policy report*. <https://www.bot.go.tz/Publications/Regular/Monetary%20policy%20report/en/2025101008502206.pdf>
- Bank of Tanzania. (2025b). *Monetary policy report*. <https://www.bot.go.tz/Publications/Regular/Monetary%20policy%20report/en/2025071116414807.pdf>
- Bank of Tanzania. (2025c). Statistics: Mobile money (monthly tables). <https://www.bot.go.tz/publications/statistics>
- Can, Z., & Albey, E. (2017). Churn prediction for mobile prepaid subscribers. In *Proceedings of the 6th International Conference on Data Science, Technology and Applications (DATA 2017)*. <https://doi.org/10.5220/0006425300670074>
- Chowdhary, H., Chaudhary, N. K., Harahsheh, F. A. H., Mustafa, M. A., Rajak, M., & Tomar, R. K. (2024). Technical analysis of internet shutdowns: Economic and cybersecurity dimensions in India and international context. *Journal of Theoretical and Applied Information Technology*, 102(4).
- CIPESA. (2017). *Calculating the economic impact of internet disruptions in Sub-Saharan Africa*. https://cipesa.org/?wpfb_dl=252
- De Gregorio, G., & Stremlau, N. (2020). Internet shutdowns and the limits of law. *International Journal of Communication*, 14. <https://ijoc.org/index.php/ijoc/issue/view/16>
- De Marco, L., Ferrucci, F., Kechadi, M. T., Napoli, G., & Salza, P. (2016). Towards automatic service level agreements information extraction. In *Proceedings of the 6th International Conference on Cloud Computing and Services Science (CLOSER 2016)*. <https://doi.org/10.5220/0005873100590066>
- Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution*. <https://doi.org/10.1596/978-1-4648-1259-0>

- Ecofin Agency. (2025, October 20). Tanzania: Number of internet subscribers reached 56.3 million in Q1 2025/26. <https://www.ecofinagency.com/telecom/2010-47047-tanzania-number-of-internet-subscribers-reached-56-3-million-in-q1-2025-26>
- Financial Times. (2025). Tanzania shaken by unprecedented protests at “sham election.” <https://www.ft.com/content/82986876-72e3-42d2-84ab-472a2e55310d>
- France24. (2025). At least 700 dead in Tanzania’s post-election protests, opposition says. <https://www.france24.com/en/africa/20251031-at-least-700-dead-in-tanzania-s-post-election-protests-opposition-says>
- Global Network Initiative. (2020). *Life interrupted: Centering the social impacts of network disruptions in advocacy in Africa*. <https://globalnetworkinitiative.org/wp-content/uploads/Life-Interrupted-Report.pdf>
- Human Rights Research Center. (2025). Internet shutdown: How governments weaponize connectivity. <https://www.humanrightsresearch.org/post/internet-shutdown-how-governments-weaponize-connectivity>
- Internet Society. (2025). *Policy brief: Internet shutdowns*. <https://www.internetsociety.org/resources/doc/2025/policy-brief-internet-shutdowns/>
- John, U. (2020). The bolts and nuts of online content regulation in Tanzania. *Information and Communications Technology Law*, 29(1). <https://doi.org/10.1080/13600834.2020.1705034>
- Kelly, M. M., Martin-Peters, T., & Farber, J. S. (2024). Secondary data analysis: Using existing data to answer new questions. *Journal of Pediatric Health Care*, 38(4). <https://doi.org/10.1016/j.pedhc.2024.03.005>
- Kim, M. K., Park, M. C., Lee, D. H., & Park, J. H. (2019). Determinants of subscriptions to communications service bundles and their effects on customer retention in Korea. *Telecommunications Policy*, 43(9). <https://doi.org/10.1016/j.telpol.2018.10.005>
- Mare, A. (2020). State-ordered internet shutdowns and digital authoritarianism in Zimbabwe. *International Journal of Communication*, 14, 4244–4263. <https://ijoc.org/index.php/ijoc/article/view/11494/3184>
- Migliano, S. (2025). Government internet shutdowns cost \$7.69 billion in 2024. <https://www.top10vpn.com/research/cost-of-internet-shutdowns/>
- Mortazavi, L., Alishahi, M., Darbandiolya, A. R., & Nazemi, A. M. (2020). Turn off/on base stations with CSO approach using simulated annealing algorithm in 5G networks. In *2020 10th International Conference on Computer and Knowledge Engineering (ICCKE)*. <https://doi.org/10.1109/ICCKE50421.2020.9303715>
- Nazir, Z., & Bollen, M. H. J. (2022). Investigating various severity factor behaviors for operational risk assessment. *Electricity*, 3(3). <https://doi.org/10.3390/electricity3030018>
- NetBlocks. (2021). *COST: The NetBlocks cost of shutdown tool*. <https://netblocks.org/cost/>
- NetBlocks. (2025). Update: Metrics show internet connectivity in Tanzania remains disrupted. Instagram post. <https://www.instagram.com/p/DQezQdAiW7N/>
- Nwosu, E. (2025, October 30). TechCabal daily – Internet shutdown in Tanzania. <https://techcabal.com/2025/10/30/techcabal-daily-internet-shutdown-in-tanzania>
- OONI. (2025). OONI analysis on the blocking of the X social media platform in Tanzania. <https://ooni.org/post/2025-tanzania-blocked-twitter/>
- Palomba, A. (2020). Do SVOD product attribute trade-offs predict SVOD subscriptions and SVOD account access? *International Journal on Media Management*, 22(3–4). <https://doi.org/10.1080/14241277.2021.1920023>
- Pandita, A., Upadhyay, P. K., & Joshi, N. (2021). Prediction of service-level agreement violation in cloud computing using Bayesian regularisation. *Advances in Intelligent Systems and Computing*, 1141. https://doi.org/10.1007/978-981-15-3383-9_21
- Reuters. (2025, October 29). Tanzania declares curfew in commercial capital after election protests. <https://www.reuters.com/world/africa/tanzania-declares-curfew-commercial-capital-after-election-protests-2025-10-29>

- Righi, M. B., & Ceretta, P. S. (2016). On the existence of an optimal estimation window for risk measures. *Economics Bulletin*, 36(1). <https://pdfs.semanticscholar.org/89a3/4524d1de97143cda53772c3740102c72d730.pdf>
- Rønn, K. V., & Lippert-Rasmussen, K. (2020). Out of proportion? On surveillance and the proportionality requirement. *Ethical Theory and Moral Practice*, 23(1). <https://doi.org/10.1007/s10677-019-10057-z>
- Sasaki, K., Taguchi, Y., Takanashi, M., Sanda, K., & Nakao, A. (2024). Multi-carrier MVNO architecture for mission-critical services. In *IEEE Vehicular Technology Conference*. <https://doi.org/10.1109/VTC2024-Fall63153.2024.10757682>
- Satriawan, I., Elven, T. M. A., & Lailam, T. (2023). Internet shutdown in Indonesia: An appropriate response or a threat to human rights? *Sriwijaya Law Review*, 7(1). <https://doi.org/10.28946/slrev.vol7.iss1.1018.pp19-46>
- Schuh, G., Wenger, L., Stich, V., Hicking, J., & Gailus, J. (2020). Outcome economy: Subscription business models in machinery and plant engineering. *Procedia CIRP*, 93. <https://doi.org/10.1016/j.procir.2020.04.146>
- Sehloho, M. (2025, October 30). Tanzania cuts internet amid election-day protests. *Connecting Africa*. <https://www.connectingafrica.com/connectivity/tanzania-cuts-internet-amid-election-day-protests>
- Shao, D., Mwangakala, H., Ishengoma, F., Mongi, H., Mambile, C., & Chali, F. (2023). Sustainance of the digital transformations induced by the COVID-19 pandemic response: Lessons from Tanzanian public sector. *Global Knowledge, Memory and Communication*, 72(6–7). <https://doi.org/10.1108/GKMC-11-2021-0186>
- Tagat, A., Phokeer, A., & Kreitem, H. M. (2024). Net loss: An econometric method to measure the impact of internet shutdowns. *ACM Journal on Computing and Sustainable Societies*, 2(2). <https://doi.org/10.1145/3659466>
- Tanzania Media Coalition. (2025). The state of internet governance and emerging digital threats in Tanzania. https://x.com/TMC_tz/status/1860479202136252728
- Tanzania Revenue Authority. (n.d.). Value added tax (VAT) (standard rate 18%). Retrieved January 21, 2026, from <https://www.tra.go.tz/page/value-added-tax-vat>
- Tanzania Revenue Authority. (2025). *Taxes and duties at a glance 2025/2026*. https://www.tra.go.tz/images/uploads/pages/TAXES_AND_DUTIES_AT_A_GLANCE_2025_2026.pdf
- TCRA. (2025). *Quarterly communications statistics report: June–September 2025 (Q1 2025/26)*. <https://tcra.go.tz/uploads/text-editor/files/Communications-Statistics-Report-JUNE-SEPT-2025-QTR-1-2025-26.pdf>
- TechAfricaNews. (2025). Airtel Tanzania restores internet service after October outage. <https://techafricanews.com/2025/11/06/airtel-tanzania-restores-internet-service-after-october-outage/>
- The Citizen. (2025). Tanzania is Africa's third most censored internet, report says. <https://www.thecitizen.co.tz/tanzania/news/national/tanzania-is-africa-s-third-most-censored-internet-report-says-4508512>
- Top10VPN. (2025). Government internet shutdowns cost \$7.69 billion in 2024. <https://www.top10vpn.com/research/cost-of-internet-shutdowns/>
- Van Gorp, A., & Maitland, C. (2009). Regulatory innovations in Tanzania: The role of administrative capabilities and regulatory governance. *Info*, 11(1). <https://doi.org/10.1108/14636690910933000>
- Wagner, B. (2018). Understanding internet shutdowns: A case study from Pakistan. *International Journal of Communication*, 12. <https://ijoc.org/index.php/ijoc/article/view/8545/2465>
- Wei, Y., Yu, J., Lok, T. M., & Gao, L. (2019). A novel mobile data contract design with time flexibility. *IEEE Transactions on Mobile Computing*, 18(5). <https://doi.org/10.1109/TMC.2018.2852654>
- Yadav, A., & Sagar, M. (2021). Modified total interpretive structural modeling of marketing flexibility factors for Indian telecommunications service providers. *Global Journal of Flexible Systems Management*, 22(4). <https://doi.org/10.1007/s40171-021-00278-6>