



Supporting Digital Livelihoods for Internally Displaced Refugees in the Occupied Palestinian Territory: Addressing the Impact of Physical Infrastructure Destruction

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Abdel-Wahab, A. (2025). Gaza's Telecommunications: Occupied and Destroyed | Al-Shabaka. [online] Al-Shabaka. Available at: <https://al-shabaka.org/briefs/gazas-telecommunications-occupied-and-destroyed/> [Accessed 7 Apr. 2026].



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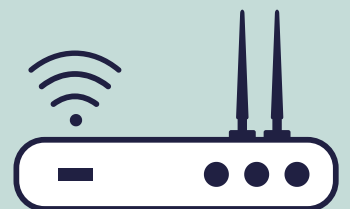




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Executive Summary



Kompas, T.H. (2023). The Struggle of the Guardians of the Gaza Communications Network. [online] Kompas.id. Available at: <https://www.kompas.id/artikel/en-perjuangan-para-penjaga-jaringan-komunikasi-gaza> [Accessed 7 Apr. 2026].

This policy brief argues that digital livelihoods are essential to economic resilience for internally displaced Palestinians in the Occupied Palestinian Territory, but remain constrained by destroyed telecommunications infrastructure, unreliable electricity, unaffordable solar power, and the loss of coworking spaces. It highlights how informal internet providers, community energy sharing, and initiatives such as Taqat and Watad for Gaza have sustained limited access despite severe disruption. To support displaced workers, the brief recommends formalising hybrid ISP models, investing in community-level solar infrastructure, and providing sustained funding for digital hubs to rebuild economic agency and long-term resilience.

Introduction

Union Aid Abroad APHEDA (2025). Solidarity In Action: Palestinian Cooperatives Building Economic Independence Amid Crisis . [online] Union Aid Abroad. Available at: <https://apheda.org.au/solidarity-in-action-palestinian-cooperatives-building-economic-independence-amid-crisis/> [Accessed 7 Apr. 2026].



“ The ICT sector was a crucial and rapidly expanding part of the Palestinian economy, accounting for approximately 4% of GDP (roughly \$651 million in 2022) and providing employment for nearly 9,000 people... It is increasingly seen as a strategic catalyst for economic growth¹.

Despite the importance of the digital economy to Palestine's national development, internet connectivity in the Occupied Palestinian Territory has been historically limited. Decades-long Israeli restrictions on telecommunications infrastructure² and the movement of technology into the region has placed Palestinians "behind regional counterparts and at a large technological and economic disadvantage"³.

Since October 2023, this already fragile digital environment has deteriorated further. Palestinian territory has experienced sustained bombardment, resulting in mass casualties and displacement⁴, while essential infrastructure, including connectivity infrastructure, has been severely damaged. Within the first month of conflict, internet access was reduced by 90% due to airstrikes affecting internet connectivity and electricity, with serious consequences for digital livelihoods⁵.

In this context, supporting and sustaining digital livelihoods is crucial. With the movement of people and resources in and out of Palestinian territory heavily restricted, digital work remains one of the few ways Palestinians can contribute to the region's economic resilience and support themselves, without reliance on external, unpredictable aid. Hence, this policy brief will examine the pertinent issues, namely coverage rather than usage gaps in the form of damage to physical infrastructure, currently affecting digital livelihoods in Palestine, and opportunities for context-specific improvements.

1. (Alshurafa, 2025)

2. (Leake, 2024)

3. (World Bank Group, 2021)

4. (United Nations, 2026)

5. (Biddle, 2023)

Background



Access Now (2024). A Week in the Dark: Connectivity in Gaza Must Be Restored Now. [online] Access Now. Available at: <https://www.accessnow.org/press-release/gaza-a-week-in-the-dark/> [Accessed 7 Apr. 2026].

The International Labour Organization identifies four aspects of digital livelihoods: digital skills training; work on digital platforms for remote employers, including freelancing; locally based work that uses digital skills; and small-scale digital entrepreneurship, where digital tools are used to run and develop businesses⁶. In the wake of the genocide, some sources suggest that collapsed infrastructure has produced an informal digital shift, in the form of locally based, digitally enabled work, corresponding to the ILO's third category of digital livelihoods. This shift, alongside the ability to source work and income externally from other countries, is what makes the analysis of digital livelihoods so pertinent to supporting Palestine's local economy.

Nearly all of Gaza's population has been displaced⁷, making a direct analysis of digital livelihoods essential. This is necessary not only to address the widening digital divide between highly vulnerable individuals in Gaza and the rest of the world, where technological knowledge and digital economies continue to advance, but also because the digital economy could play a significant role in rebuilding Palestine's GDP, which contracted by a historic 83% in 2024⁸.

Digital livelihoods, as delineated above, are seen as an opportunity in refugee contexts, offering refugees a way to diversify their income streams and build economic resilience⁹. However, the complexities and challenges of this approach are still being realised¹⁰, even as policymakers continue to perceive digital livelihoods as a "quick fix"¹¹. In reality, digital livelihoods cannot be treated as a band-aid solution in crisis contexts, as they depend on infrastructure that enables consistent connectivity, including telecommunications, electricity, and co-working spaces, as outlined in this policy brief.

6. (Hackl, 2021)
7. (OCHA, 2023)
8. (The World Bank, 2026)
9. (Nicolle, 2022)
10. (Hackl, 2021)
11. (Nicolle, 2022)

The Problem



1.1 The Physical Destruction of Telecommunication Infrastructure

Prior to October 2023, telecommunications coverage in Gaza was relatively high, with internet and landline coverage reaching approximately 93%¹². As of 2018, the West Bank also had higher rates than Gaza for household smartphone ownership, at 88% compared with 73%, and household internet access, at 72% compared with 51%¹³. However, these figures must be viewed in context. Although coverage existed, Gaza's mobile network had remained largely limited to 2G, a 1990s-standard connection¹⁴. This reflects the broader conditions of occupation, as since 1967, Israel is reported to have exercised extensive control over ICT infrastructure in Gaza and the West Bank, preventing Palestinians from independently managing and developing their telecommunications systems¹⁵. The military blockade has further restricted the entry of telecommunications equipment on the grounds of its potential "dual-use" function, meaning it could be used by both civilians and designated terrorist groups¹⁶. The continued reliance on 2G has also been linked to the relative ease with which such networks can be surveilled and intercepted by Israel¹⁷. As a result, Palestinian telecommunications providers have been unable to upgrade Gaza's mobile network infrastructure¹⁸.

Telecommunications infrastructure and connectivity have been particularly affected in the conflict. Within days of the conflict beginning, Israeli attacks had destroyed two of Gaza's three primary mobile communication lines¹⁹. In the longer term, "approximately 75% of the network has been affected and at least 50% completely destroyed," cutting off connectivity for hundreds of thousands of individuals and making digital livelihoods even increasingly unfeasible²⁰.

1.2 Intentional Internet Blackouts



Israel exercises control by tightly limiting Palestinian access to radio frequencies. Since Gaza's fibre-optic connections are routed through Israeli territory, Israel is able to monitor and regulate the movement of digital information²¹. This gives it the capacity to disrupt or restrict connectivity, making communication especially difficult for Palestinians during periods of crisis. In October 2023, this was reflected in days-long intentional shutdowns²².

12. (Palestinian Central Bureau of Statistics, 2025)

13. (Palestinian Central Bureau of Statistics, 2019)

14. (Leake, 2024)

15. (Farah, 2023)

16. (Lapowsky, 2023)

17. (Leake, 2024)

18. (Lapowsky, 2023)

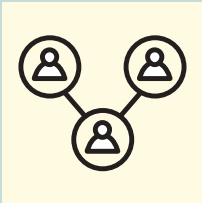
19. (Alshurafa, 2025)

20. (Alshurafa, 2025)

21. (Abdel-Wahab, 2025)

22. (Amnesty International, 2023)

The Problem



1.3 The Rise of Informal Internet Providers

To tackle these coverage issues, which, beyond their impact on the digital economy, had real-life, daily ramifications such as impacting the ability to keep in contact with family and friends, receive updates on military activity and ongoing displacement, or contact medical personnel, informal internet service providers (ISPs) began to emerge in Palestine²³. Informal ISPs provide last-mile and community-centric coverage, where there is the least top-down financial incentive to reach them, becoming essential enablers of the digital economy and a crucial part of the digital ecosystem. This can be primarily demonstrated through the case study of Paltel, the largest licensed ISP in Palestine, which after the conflict commenced, launched the Almubadra Initiative, supporting this ecosystem of informal ISPs²⁴.

Partnered research by the Palestine Economic Policy Research Institute, funded by the Swedish Government, outlines case studies showing how individuals such as Khalil were able to reconstruct networks using salvaged and donated equipment. Through bartering and by offering services such as minor technical repairs and personal labour, Khalil was able to source old routers, partial cabling, and antennas. This allowed him to establish limited yet operational hotspots in displacement shelters, part of a larger ecosystem which, through peer-to-peer agreements on shared equipment and mutual troubleshooting, provide internet access to some of the most vulnerable communities²⁵.

Paltel, Palestine's largest licensed internet service provider, integrated informal ISPs into its wider network, recognising that informal ISPs were essential for reaching areas where formal infrastructure had been damaged or made inaccessible. Paltel began working with informal ISPs by setting minimum standards for service quality and standardised revenue-sharing mechanisms and defined rules for operation. Under this system, Paltel remained responsible for regulatory compliance, taxation, and upstream infrastructure, while local resellers concentrated on last-mile connectivity. This approach showed Paltel's acknowledgement that locally managed networks were ultimately more adaptable and mobile than centralised infrastructure in displacement settings²⁶. Community-based networks are also able to provide flexible, relatively low-cost connectivity compared with the Israeli or Egyptian networks²⁷.

The weaknesses of this approach are that operators nonetheless had to deal with an unstable upstream supply. This is in addition to the regulatory and legal challenge of operating without formal licenses, which continues to create persistent "legal and operational risks"²⁸.

24. (Althrawi and Qidra, 2026)

25. (Althrawi and Qidra, 2026)

26. (Althrawi and Qidra, 2026)

27. (Althrawi and Qidra, 2026)

2.1 Physical Destruction of Infrastructure - Electricity

Prior to the war, Gaza experienced regular blackouts. Most households only had access to a few hours of daily electricity, relying on a fragile mix of limited fuel and power imports from Israel, and Gaza's sole power plant.

As part of a complete siege following October 7th, Gaza's power plant ran out of fuel within four days. With no mains electricity, telecommunication infrastructure was reliant on generators, but in line with fuel delivery restrictions, generator use has been unreliable, leading to major blackouts.

Long term, Gaza's electricity infrastructure has deteriorated, both due to fuel shortages and physical destruction of the grid due to bombardment. As of 2026, Gaza's power system can be described as non-functional, with fragmented electricity access, largely dependent on sporadic 'quick-fixes' as opposed to a stable grid. Generators continue to be the primary alternative but are severely limited by continued fuel scarcity, affecting essential services and the potential of the digital economy.



2.2 Reliance on Solar Power

Due to the inability to rely on mains electricity, many individuals in Palestine attempting to access digital livelihoods have become dependent on solar power. This often takes the form of solar panels; however, these can cost up to \$420 per panel, with the additional cost of a battery reaching around \$1,200. Solar panels are also scarce due to Israeli restrictions on their entry into Gaza since the beginning of the conflict. There are reports of families in displacement camps attempting to pool resources to buy energy systems, yet still being unable to afford them.

Beyond the issue of price, solar power is often incompatible with the working hours required for digital projects and imposes significant time limitations. Workers in the digital economy report losing projects due to the interruptions caused by their reliance on solar power.

Jamal is an individual who utilised his solar panels, which were installed before the conflict to assist with tasks such as pumping water and irrigating his land, and repurposed them to charge phones for the local community. He operated a small, informal business, where he was able to provide charge for up to 200 phones on a daily basis. Bombardment damaged four out of six of his panels, reducing the capacity of the panels, and lowering his capacity to charge phones to roughly 60 phones daily.

Shifting conditions such as clouds and the winter seasons led to reduced efficiency, on which Jamal reflects:

“

In winter, you look for alternatives to solar panels and turn to generators that barely work ... the electricity crisis makes you feel like you are running in a never-ending cycle of suffering.³⁷

29. (Humaid, 2026)

30. (Humaid, 2026)

31. (Humaid, 2026)

32. (Humaid, 2026)

33. (Humaid, 2026)

34. (Humaid, 2026)

35. (Alshurafa, 2025)

36. (Humaid, 2026)

37. (Humaid, 2026)

2.3 Rising Cost of Electricity

When electricity is available, it remains unreliable and unaffordable for most, rising to \$12 per kilowatt compared with \$1.50 for 10 kilowatts before the war³⁸.

3.1 Physical Destruction of Coworking Spaces



Tutt, M. (2025). Support Palestine by Hiring Freelancers on Taqat | Matt Tutt. [online] Matt Tutt. Available at: <https://matttutt.me/support-palestine-by-hiring-freelancers-on-the-taqat-platform/> [Accessed 7 Apr. 2026].

In addition to telecommunication and power infrastructure being impacted, the destruction of coworking spaces has been detrimental to the digital economy in Palestine³⁹. Prior to October 2023, Gaza's coworking scene was flourishing. A notable case study is Gaza Sky Geeks, an initiative set up in 2011 with the help of the Mercy Corps⁴⁰. These spaces provided remote internships, serving as key pathways to employment. They offered indispensable opportunities, connecting individuals directly with international employers and integrating Palestinians into the global digital workforce⁴¹.

In the wake of the war and the physical destruction of these spaces, overall internet access has declined, as many households lack both physical access to the internet and the means to pay for it. Approaches to this challenge can be demonstrated by the case studies of the Taqat and Watad initiatives. Initially, in 2024, Taqat, as a community space based in Gaza, powered by solar energy, offered itself as a free space for freelancers, remote workers, and students, before it started charging a symbolic fee⁴². To support members of the digital economy, youth-led initiatives such as Watad for Gaza arose, to offer freelancers training and cover workspace and subscription fees through external donations⁴³. This was an opportunity for freelancers, as covering initial fees would allow them to secure their first projects. However, initiative founders have nonetheless reported difficulties in sustaining financial support for such programmes⁴⁴.

38. (Al Jazeera Staff, 2025)

39. (Alshurafa, 2025)

40. (Gaza Sky Geeks, 2023)

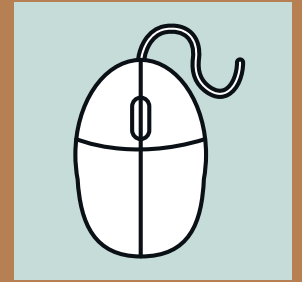
41. (Alshurafa, 2025)

42. (Alshurafa, 2025)

43. (Alshurafa, 2025)

44. (Alshurafa, 2025)

Recommendations



Leake, M. (2024). Palestinians Struggle to Connect and Get News amid Digital Shutdowns in Gaza: 'Without the Internet Everything Stops'. [online] reutersinstitute.politics.ox.ac.uk. Available at: <https://reutersinstitute.politics.ox.ac.uk/news/palestinians-struggle-connect-and-get-news-amid-digital-shutdowns-gaza-without-internet> [Accessed 7 Apr. 2026].

1. Formalise Hybrid ISP Models

The informal ISP ecosystem that emerged across Gaza during the conflict is not a temporary fix; it is a functional and necessary layer of telecommunications infrastructure. As the Almubadra Initiative demonstrates, hybrid models that formally integrate informal providers can significantly extend coverage in areas where centralised infrastructure has been destroyed or rendered inaccessible, and where there is little top-down initiative to reinstall this infrastructure. Policymakers and international donors should prioritise the formalisation of these models through flexible emergency licensing frameworks that permit informal operators to function legally without being subject to the same regulatory burdens as large commercial providers.

In practical terms, this means establishing clear revenue-sharing agreements between licensed operators and informal providers so that informal providers are not exploited, providing equipment grants and subsidised access to upstream bandwidth, and creating a multi-stakeholder working group that brings humanitarian organisations, telecommunications providers, and community representatives into conversation to coordinate the new infrastructure system. Critically, any recovery strategy that attempts to replace these informal networks risks losing the parts of Gaza's digital infrastructure that have served the most vulnerable and provided it independence.

2. Prioritise Energy Infrastructure for the Digital Economy



France-Presse, A. (2025). Internet Restored in Gaza after 3 days: Palestinian Telecom Official. [online] AL-MONITOR. Available at: <https://www.al-monitor.com/originals/2025/06/internet-restored-gaza-after-3-days-palestinian-telecom-official> [Accessed 7 Apr. 2026].



Digital livelihoods cannot function without reliable electricity. As Gaza's power grid remains non-functional and fuel imports continue to be restricted, solar energy is the most viable near-term alternative. International donors and development organisations must prioritise funding community-accessible solar installations at co-working spaces and displacement shelters, prioritising long-storage batteries capable of sustaining working hours across variable weather conditions.

Although the initial investment in solar panels and batteries may be costly, it should be understood as a necessary investment in Gaza's economic recovery. The digital economy accounted for a similar share of the 2022 economy (4%) as agriculture (5.75%)⁴⁵, yet agricultural recovery may take many seasons to yield results, particularly given unpredictable weather conditions, poor crop yields, and the difficulty of cultivating land after years of war. By contrast, sustained electricity through solar panels could provide more immediate relief to the local economy by enabling digital work to continue. This does not diminish the importance of agriculture or other economic practices, but recognises that different sectors will recover over different timeframes.

45. (Clark, 2025)

3. Fund Existing Community Digital Spaces, Investing in Expansion



Thomson Reuters Foundation (2024). In Gaza, keeping the internet on can cost lives but also save them. [online] Middle East Monitor. Available at: <https://www.middleeastmonitor.com/20240809-in-gaza-keeping-the-internet-on-can-cost-lives-but-also-save-them/> [Accessed 7 Apr. 2026].



Initiatives such as Taqat and Watad for Gaza have demonstrated the importance of community-led digital spaces, providing displaced workers with the internet access, electricity, and skills support needed to secure digital income. This policy brief stresses the importance of sustained, multi-year funding from NGOs and international development bodies to ensure the continuity of these spaces, particularly given freelancers' acknowledgements of the lack of NGO support for the digital community since the beginning of the war⁴⁶.

46. (Alshurafa, 2025)

Reference list

Abdel-Wahab, A. (2025). Gaza's Telecommunications: Occupied and Destroyed | Al-Shabaka. [online] Al-Shabaka. Available at: <https://al-shabaka.org/briefs/gazas-telecommunications-occupied-and-destroyed/> [Accessed 6 Apr. 2026].

Al Jazeera Staff (2025). Gaza's Tech Workers Code from Rubble as Israel's War Destroys Digital Life. [online] Al Jazeera. Available at: <https://www.aljazeera.com/news/2025/12/19/gazas-tech-workers-code-from-rubble-as-israels-war-destroys-digital-life> [Accessed 6 Apr. 2026].

Alshurafa, M. (2025). The Impact of the Gaza Blockade and the Destruction of Telecommunications Infrastructure on the Digital Economy Amidst Genocide. [online] 7amleh - The Arab Center for the Advancement of Social Media. Available at: <https://7amleh.org/storage/posts/pdf/76b4d099-b5a7-4ba0-add6-0a5ec92aeb1f.pdf> [Accessed 5 Apr. 2026].

Altahrawi, A. and Qidra, A.E. (2026). Informal Internet Service Providers and Their Potential Role in Promoting Digital Marketing and E-Payments in Gaza: a Case Study Report. [online] Palestine Economic Policy Research Institute. Available at: <https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://mas.ps/en/publications/13686.html&ved=2ahUKEwjL56fq7aSUAXUZVUEAHQ8hN6EQFnoECBkQAQ&usg=AOvVaw1SnkCQvE1w6rXs5VFkFoyJ> [Accessed 6 Apr. 2026].



Amnesty International (2023). Israel/OPT: Civilians in Gaza at Unprecedented Risk as Israel Imposes Communication black-out during Bombardment and Expanding Ground Attacks. [online] Amnesty International. Available at: <https://www.amnesty.org/en/latest/news/2023/10/israel-opt-civilians-in-gaza-at-unprecedented-risk-as-israel-imposes-communication-black-out-during-bombardment-and-expanding-ground-attacks/> [Accessed 7 Apr. 2026].

Biddle, S. (2023). Israel Warns Palestinians on Facebook — but Bombings Decimated Gaza Internet Access. [online] The Intercept. Available at: <https://theintercept.com/2023/10/12/israel-gaza-internet-access/> [Accessed 6 Apr. 2026].

Clark, D. (2025). Palestine: Share of Economic Sectors in GDP 2011-2021. [online] Statista. Available at: <https://www.statista.com/statistics/1423912/share-of-economic-sectors-in-the-gdp-in-palestine/> [Accessed 7 Apr. 2026].

Farah, H. (2023). Israeli Restrictions Leave Palestinians Facing Digital Divide. The Guardian. [online] 30 Oct. Available at: <https://www.theguardian.com/world/2023/oct/30/israeli-restrictions-leave-palestinians-facing-digital-divide>.

Gaza Sky Geeks (2023). Gaza Sky Geeks. [online] Gaza Sky Geeks. Available at: <https://gazaskygeeks.com/about/> [Accessed 6 Apr. 2026].

Hackl, A. (2021). Digital Refugee Livelihoods and Decent work: Towards Inclusion in a Fairer Digital Economy. [online] International Labour Organization. Available at: <https://researchrepository.ilo.org/esploro/outputs/report/Digital-refugee-livelihoods-and-decent-work/995218833302676> [Accessed 6 Apr. 2026].

Humaid, M. (2026). Living in the Dark: Gaza's Struggle for Electricity. [online] Al Jazeera. Available at: <https://www.aljazeera.com/features/2026/3/29/living-in-the-dark-gazas-struggle-for-electricity>.

Lapowsky, I. (2023). The Blockade Already Inhibited Gaza's Telecom Infrastructure - Then the Bombing Started. [online] Fast Company. Available at: <https://www.fastcompany.com/90986747/the-blockade-already-inhibited-gazas-telecom-infrastructure-then-the-bombing-started> [Accessed 6 Apr. 2026].

Leake, M. (2024). Palestinians Struggle to Connect and Get News amid Digital Shutdowns in Gaza: 'Without the Internet Everything Stops' | Reuters Institute for the Study of Journalism. [online] reutersinstitute.politics.ox.ac.uk. Available at: <https://reutersinstitute.politics.ox.ac.uk/news/palestinians-struggle-connect-and-get-news-amid-digital-shutdowns-gaza-without-internet>.

Nicolle, H. (2022). Digital Livelihoods for Refugees—Examples, Challenges, and Recommendations. [online] GMFUS. Available at: <https://www.gmfus.org/news/digital-livelihoods-refugees-examples-challenges-and-recommendations#>.

OCHA (2023). Occupied Palestinian Territory | OCHA. [online] www.unocha.org. Available at: <https://www.unocha.org/occupied-palestinian-territory> [Accessed 5 Apr. 2026].

Palestinian Central Bureau of Statistics (2019). Joint Press Release on the Eve of the International Day for Telecommunication and Information Society. [online] Pcbps.gov.ps. Available at: <https://www.pcbps.gov.ps/en/post-details/?postId=19951> [Accessed 6 Apr. 2026].

Palestinian Central Bureau of Statistics (2025). Joint Press Release on the World Telecommunication and Information Society Day, 1. [online] Pcbps.gov.ps. Available at: <https://www.pcbps.gov.ps/en/post-details/?postId=22663> [Accessed 6 Apr. 2026].

The World Bank (2026). Palestinian Territories. [online] Available at: <https://thedocs.worldbank.org/en/doc/65cf93926fdb3ea23b72f277fc249a72-0500042021/related/mpo-pse.pdf> [Accessed 5 Apr. 2026].

United Nations (2026). Report: Gaza Strip Rapid Damage and Needs Assessment – European Union, United Nations and World Bank. [online] Un.org. Available at: <https://www.un.org/unispal/document/report-gaza-strip-rapid-damage-20apr26/>.

World Bank Group (2021). Palestinian Digital Economy Assessment. [online] Available at: <https://documents1.worldbank.org/curated/en/472671640152521943/pdf/Palestinian-Digital-Economy-Assessment.pdf> [Accessed 6 Apr. 2026].