https://doi.org/10.71447/3005-2696-2025-1-45

DIGITAL CORRIDORS AND THE FUTURE OF REGIONAL TRADE: TAJIKISTAN'S DIGITALIZATION DRIVE IN THE ECO CONTEXT

PhD, Jovid Ikromi,

ikromi.jovid@gmail.com
Ministry of Economic Development and Trade of Tajikistan[1]

Abstract:

This study examines how Tajikistan, a landlocked and digitally lagging member of the Economic Cooperation Organization (ECO) can leverage regional digital integration to overcome its infrastructure and institutional deficits.

The research asks: How can landlocked ECO states like Tajikistan utilize regional digital frameworks to compensate for national-level gaps in connectivity, capacity, and policy? Using a qualitative comparative case analysis of Tajikistan alongside more advanced peers (Kazakhstan and Uzbekistan), the study draws on policy documents, digital development indicators, and institutional reports. It engages conceptual frameworks of *digital sovereignty*, *digital public goods*, and regional integration theory to assess whether regional initiatives, for example, cross-border "digital corridors," harmonized e-commerce regulations, and shared digital platforms can mitigate the disadvantages of small, remote economies. The findings indicate that regional digital cooperation can indeed act as a compensatory mechanism (for example, by pooling infrastructure and expertise), but only if accompanied by deep policy harmonization and trust among member states. Without such alignment, Tajikistan's domestic digital reforms are likely to stagnate.

The article contributes to scholarly debates by reframing digital sovereignty in a regional context and highlighting digital public infrastructure as a regional public good. It proposes a strategy based on three major three pillars (1) harmonize digital policies and standards, (2) invest in shared digital infrastructure and capacity, and (3) build regional capacity and knowledge-sharing mechanisms. These insights bridge policy and theory, offering lessons for regional connectivity and digital development.

Keywords: Tajikistan; digital economy; landlocked development; ECO region; regional integration; digital sovereignty; digital public goods; e-commerce

1. Introduction

In the wake of the COVID-19 pandemic, ECO member states have increasingly prioritized the digital economy as a driver of recovery and sustainable growth. The 14th ECO Summit in 2021 underscored the need for digital solutions to bolster economic resilience. Subsequent ECO summits, including the 15th (Ashgabat 2021) and 16th (Tashkent 2023), reiterated commitments to trade facilitation, regional connectivity, and technological innovation as pillars of shared development

[1] Disclaimer: The views expressed in this paper are solely those of the author and do not necessarily reflect the official policies or positions of the Ministry of Economic Development and Trade of Tajikistan.

(ECO, 2021; ECO, 2023). These high-level agendas have particular salience in Central Asia, where landlocked economies rely on improved connectivity to overcome geographic isolation. For Tajikistan, one of ECO's smaller and more remote economies, digitalization offers a pathway to transcend physical barriers by creating "digital corridors" that link it with regional and global markets.

Digital corridors refer to the integration of information and communication technologies (ICT) into trade and transport networks, enabling seamless cross-border data exchange, electronic trade documentation, and online services alongside traditional physical routes (Ikromi, 2025). For example, digitalizing customs procedures and logistics can significantly cut trade times and costs, complementing ongoing investments in roads and energy corridors (ECO, 2023). Improved digital connectivity also fosters inclusive growth by allowing entrepreneurs in remote areas and small businesses to participate in regional trade more easily. In short, digital integration can help compensate for Tajikistan's landlocked geography. This premise is supported by development economics research showing that physical isolation imposes heavy costs: landlocked countries often face transport costs about 50% higher than their coastal counterparts and trade volumes around 28% lower, even after controlling other factors (Limao & Venables, 2001). Digital infrastructure and online markets offer a chance to mitigate these disadvantages of being "landlocked" in the physical sense by virtually linking Tajikistan to its neighbors and to the world.

Beyond these practical motivations, Tajikistan's digital transformation can be viewed through emerging theoretical lenses. Concepts of digital statehood and digital sovereignty highlight that in the modern era, state capacity and sovereignty are increasingly exercised in cyberspace (Hulkó, Kálmán, & Lapsánszky, 2025). Digital sovereignty has been broadly defined as "the ability of a country or region to exercise control over its own digital infrastructure, data use and technological developments, independent of external influence" (Hulkó et al., 2025). Traditionally, this term is interpreted as a form of national autonomy, the state's control over data, technologies, and networks within its borders (often linked to policies like data localization or independent internet infrastructure). However, for a small state like Tajikistan, achieving full digital autonomy is extremely challenging. No single country can supply and maintain all the components of a modern digital ecosystem on its own (Collier, 2007). Even large nations rely on cross-border supply chains and knowledge networks for crucial ICT elements (for example, semiconductor production or global internet exchange), so smaller economies are even more dependent on external cooperation.

Scholars argue that full digital self-sufficiency is practically impossible for small states, and that "regional cooperation is a necessity" for them to attain digital security and efficiency (Shoker, 2022). In other words, there is an inherent tension between digital sovereignty as national autonomy and digital sovereignty as a pooled regional capacity achieved through integration. This tension is central to Tajikistan's case. On one hand, pursuing digital sovereignty in the sense of absolute national control might lead to isolation and stagnation; on the other, pooling resources with neighbors requires ceding a degree of autonomy. Effective digital sovereignty for Tajikistan may paradoxically require ceding some autonomy in favor of regional frameworks, a cooperative approach whereby ECO members collectively bolster each other's digital capacity. As Shoker (2022) notes, "digital autonomy is especially impossible in the case of small states," so they must pursue sovereignty "by cooperation" through partnerships and alliances. This conceptual nuance reframes digital sovereignty not as uncompromising self-reliance, but as the ability to jointly manage digital resources and governance in a way that enhances each nation's effective control over its digital destiny.

Related to this is the concept of digital public goods and regional digital public infrastructure. Digital public goods (DPGs) are typically open-source software, data standards, and platforms that can be freely used, modified, and shared across borders (UN Secretary-General's Panel on Digital Cooperation, 2020). They form the building blocks for digital public infrastructure for example, interoperable digital ID systems, payment platforms, or data exchange standards, which can be jointly developed and adopted by multiple countries.

An integrated approach to ICT development, with shared DPGs, can foster "whole-of-government and regionally coordinated" digital solutions. In the ECO context, viewing systems like e-commerce platforms or cybersecurity frameworks as *regional public goods* could help members like Tajikistan leapfrog by using common digital tools and standards developed with stronger partners. The idea of regional digital integration aligns with broader theories of regional integration in development economics, where collective action can provide regional goods that no single country could supply cost-effectively on its own. Just as neighbors might share electric grids or transportation links, they can share digital infrastructure (for instance, internet exchange points or cloud data centers) and even policy frameworks. This not only yields economies of scale but also ensures interoperability and security across countries. In summary, the theoretical framework guiding this study posits that landlocked, smaller economies can achieve digital progress by pooling resources, standardizing rules, and co-developing digital public goods at the regional level**,** thereby turning shared challenges into collective opportunities.

Within this context, our research question is as follows:

Can regional digital cooperation under ECO serve as a mechanism for Tajikistan (and similar landlocked states) to overcome national deficits in digital infrastructure, skills, and governance? We approach this question by examining Tajikistan's digital development status and comparing it with two peer ECO countries (Kazakhstan and Uzbekistan) that have made more rapid progress. The comparative analysis illuminates how regional collaboration and knowledge transfer might help bridge Tajikistan's digital divide. We then propose strategic recommendations grounded in the concept of pooled digital sovereignty for Tajikistan and its ECO partners to jointly foster an inclusive regional digital ecosystem. The findings shed light on why regional digital integration is essential for Tajikistan to overcome domestic capacity constraints and fully realize its digital transformation.

2. Tajikistan's Digital Transformation: Progress and Challenges

2.1 Policy Reforms and Initiatives

Over the past few years, the Tajik government has launched multiple policies aimed at jump-starting its digital economy. Notably, the "Concept for the Digital Economy" (adopted 2019) and a follow-up Program for 2021–2025 established a national vision for ICT development. These strategies set targets for expanding broadband access, developing e-government services, and promoting ICT skills. In addition, new laws and regulations have been introduced to create an enabling environment for digital commerce and innovation, for instance, a Law on Electronic Commerce (2022) to legitimize online transactions, and cybersecurity guidelines aligned with international standards. Tajikistan also joined the World Bank's regional Digital CASA project in 2018, aiming to improve internet connectivity through regional fiber-optic links and to strengthen digital government platforms. Furthermore, the government created the Agency for Information and Communication Technologies (CIT) under the President to coordinate digital transformation initiatives across sectors. These steps

signal a growing political will to integrate into the global digital economy and catch up with regional peers. International partners have supported Tajikistan's efforts. The Asian Development Bank and USAID funded projects to expand rural telecommunication infrastructure and e-government capacity (USAID, 2023), while the International Telecommunication Union (ITU) provided policy advice and training (ITU, 2022). As a result, some early gains are evident. The introduction of online business registration and electronic tax filing has begun to streamline bureaucratic processes (World Bank, 2024b). A small tech startup scene is slowly emerging in Dushanbe, and awareness of digital opportunities has increased among the urban youth (USAID, 2023). The government has also piloted several e-government services, such as electronic notarization and digital licensing portals (UNESCAP, 2022). These policy initiatives indicate that Tajikistan is actively laying the groundwork for a digital economy.

However, it is important to note that these reforms are nascent and have yet to yield major outcomes. Many laws remain on paper with uneven implementation on the ground. Funding for large-scale ICT projects is limited, and coordination between ministries can be slow. Moreover, frequent turnover in government personnel and shifting priorities have at times stalled the continuity of digital initiatives. Thus, while the strategic intent is in place, Tajikistan still faces an uphill battle in translating policies into widespread digital transformation.

This paper contributes to the growing literature on regional digital governance by offering a reframing of digital sovereignty for small, landlocked states. Traditionally defined as national control over data and digital infrastructure, digital sovereignty has often implied a pursuit of autonomy. Yet for capacity-constrained economies like Tajikistan, this notion is both impractical and potentially counterproductive. Instead, sovereignty may be better conceived as a shared capacity—achieved not by isolation, but through collective infrastructure, interoperability standards, and mutual institutional support. This paper examines that proposition through the lens of 'digital corridors' in the ECO region.

2.2 Current Digital Landscape and Gaps

Tajikistan's digitalization drive has yielded some initial gains, but the country's overall digital landscape remains underdeveloped compared to regional neighbors. Internet access has expanded in recent years by early 2024, Tajikistan had an estimated 4.25 million internet users, representing about 41–42% of the population (DataReportal, 2024a). This is a substantial increase from just a few years prior, for example, internet penetration was around 17% in 2015 (World Bank, 2021), reflecting the spread of mobile networks and cheaper smartphones.

However, it still lags far behind Kazakhstan and Uzbekistan, where over 80–90% of the population is online (DataReportal, 2023; TheGlobalEconomy, 2024). In rural and remote areas of Tajikistan, connectivity remains very sparse. Mobile broadband coverage reaches only around 60% of the population (mostly in cities), and 4G networks are largely absent outside the capital and major towns. By contrast, both Kazakhstan and Uzbekistan report over 95% population coverage for 4G, and have even begun rolling out 5G in urban centers (DataReportal, 2023; World Bank, 2024). The quality of internet service in Tajikistan is also relatively poor international bandwidth per capita is extremely low (on the order of 5–10 kbps per person in 2021), since the country relies on a few costly transit links through neighboring states (World Bank, 2021).

These connectivity issues are compounded by weak legal and institutional capacity. As Ikromi (2022) highlights, Tajikistan has yet to transition from outdated regulatory models, with limited

reform in digital governance and persistent state dominance in the ICT sector. High wholesale bandwidth costs translate into expensive and slow internet for end users, contributing to a persistent digital divide between Tajikistan and better-connected countries. These challenges are summarized in Table 1, which outlines the key structural and institutional gaps currently limiting Tajikistan's digital progress. These patterns are consistent with previous research (Ikromi, 2022), which underscores the persistent institutional inertia and geographic disadvantages shaping Tajikistan's digital landscape.

Table 1:

Digital Development Gaps in Tajikistan

Category	Gap Description	Additional Issues
Internet Access	Low internet penetration (~42%)	
Broadband Infrastructure	Limited fiber-optic coverage and expensive transit links	
Digital Services	Few digital government services, weak e-commerce uptake	Weak e-payment ecosystem; limited user trust
Institutional Capacity	Recent establishment of coordination bodies, still limited in capacity	New institutions (e.g., digital agency) still developing technical expertise
Human Capital	Digital literacy low, especially in rural areas	
International Bandwidth	High cost per Mbps due to reliance on external providers	Limited international bandwidth; poor rural 4G coverage
Legal and Policy Framework	Early-stage implementation of e-commerce and digital laws	Limited regulatory support for cross-border digital trade
Telecom Infrastructure	No national IXP	Limited international bandwidth; poor rural 4G coverage
Regional Integration	Minimal engagement in joint digital projects	No mutual recognition of digital certificates

Sources: World Bank (2024), ITU (2023), Ikromi (2022), DataReportal (2024)

Another gap is in e-government and digital public services. Tajikistan has only a few hundred government services online, roughly 30% (Ikromi, 2022; World Bank, 2024a) of public services have some digital presence, and the country is still developing a unified e-government web portal. In practice, most administrative tasks in Tajikistan must still be done in person with paper forms. In contrast, Kazakhstan offers over 90% (World Bank, 2023; ITU, 2023) of public services online through a well-established e-government portal (eGov.kz), and Uzbekistan offers around 60% (with over 560 services available on its my.gov.uz platform) (ITU, 2023; International Trade Centre, 2023). Citizen uptake of e-services is accordingly much higher in those countries, whereas in Tajikistan digital government usage is minimal. The ICT sector of Tajikistan is also in an early stage, there are only a few small IT companies and startups, and the country imports most of its software and hardware (Ikromi, 2022). Limited human capital is a major issue: only about 10% of Tajikistan's labor force has advanced digital skills, and there are few domestic training programs producing IT

specialists at scale (UNESCAP, 2022; World Bank, 2024b). By comparison, Kazakhstan and Uzbekistan have nurtured sizeable tech workforces and IT industries (e.g., Uzbekistan's IT Park hub has hundreds of resident companies and startups) (International Trade Centre, 2023).

Crucially, Tajikistan's international connectivity is constrained by its geography and infrastructure. As a landlocked nation, it depends on neighboring countries for access to global internet backbones. Currently, internet traffic from Tajikistan must transit through Uzbekistan, Kazakhstan, or Russia to reach major global exchange points (World Bank, 2023; ADB, 2023). This dependency not only raises costs but also creates vulnerability: outages or policy shifts in transit countries can directly impact Tajikistan's connectivity. The country has joined regional infrastructure projects (like Digital CASA) in hopes of diversifying routes for instance, linking through Kyrgyzstan to connect with China or through Afghanistan to connect southward, but these links are not yet fully operational or secure. Meanwhile, domestic fiber-optic infrastructure is thin; many districts are still connected by older microwave links or even satellite in remote mountain areas, which limits bandwidth. Power supply instability further hampers telecom networks in rural areas (World Bank, 2024a).

Despite some important first steps, Tajikistan's digital transformation remains fragile and uneven. Policy frameworks have been launched, and internet access has grown but the foundations are still thin. Infrastructure gaps, limited talent, and high connectivity costs continue to weigh down progress. More importantly, reforms often remain on paper, slowed by institutional fragmentation and dependence on costly external networks. For a landlocked country with modest resources, this kind of isolation becomes more than a logistical hurdle. It turns into a structural disadvantage. What Tajikistan lacks in scale, it might find through smart alignment with its neighbors. The next section examines how Kazakhstan and Uzbekistan, not without their own constraints, managed to leap ahead by combining domestic reform with regional openness. Their trajectories offer Tajikistan both a mirror and a map.

3. Comparative Analysis: Lessons from Kazakhstan and Uzbekistan

While Tajikistan is still in the early stages of its digital transition, other ECO member states provide useful reference points for what rapid digital progress can look like, as well as what pitfalls to avoid. In particular, Kazakhstan and Uzbekistan (Central Asia's largest economies) have undertaken robust digital transformation programs over the past decade. Both have leveraged digital technology to boost government efficiency, diversify their economies, and improve regional connectivity, in line with ECO's broader goals of an integrated and innovative region. At the same time, Kazakhstan and Uzbekistan started from circumstances not entirely dissimilar to Tajikistan's for example, post-Soviet infrastructure legacies, landlocked locations, and significant rural populations and faced some of the same obstacles (such as rural connectivity gaps, outdated regulations, and shortages of IT skills). Examining how these two countries addressed those challenges can shed light on strategies that Tajikistan might emulate, as well as cautionary tales of issues to watch out for. As a backdrop, Table 2 compares key digital indicators for Tajikistan versus Kazakhstan and Uzbekistan. The disparities are striking and underscore Tajikistan's lagging position in the region. For instance, about 93% of Kazakhstan's population and 83–89% of Uzbekistan's used the internet by 2023, compared to roughly 40% in Tajikistan (DataReportal, 2023; TheGlobalEconomy, 2024). Both Kazakhstan and Uzbekistan enjoy near-universal mobile broadband coverage over 98% of their population covered by 4G networks, whereas Tajikistan's coverage is patchy outside cities (World Bank, 2024). Kazakhstan has over 15 million mobile broadband subscriptions (almost one per adult), and Uzbekistan over 20 million, while Tajikistan has only around

4–5 million (ITU, 2023). In international benchmarks like the UN E-Government Development Index, Kazakhstan ranks among the top 30 globally, and Uzbekistan in the top 50, whereas Tajikistan is near the bottom quartile (UN DESA, 2022). These quantitative gaps illustrate the regional digital divide within ECO: Tajikistan is significantly behind on access, usage, and digital services, a sobering reminder of how much it must catch up.

Table 2:
Comparative Digital Development Indicators (Tajikistan, Kazakhstan, Uzbekistan)

Indicator	Tajikistan	Kazakhstan	Uzbekistan
Internet Users (% of population)	41–42% (2024)	93% (2023)	83–89% (2023)
4G Coverage (% of population)	~60% (mostly cities)	>98%	>98%
5G Rollout (urban areas)	Not yet launched	Underway in major cities	Operational in all regions
Mobile Broadband Subscriptions (millions)	4–5 million	15+ million	20+ million
UN E-Government Development Index Ranking	Bottom quartile	Top 30	Top 50
Adoption of National Digital Strategy	Yes (2019, updated 2024)	Yes (2018–2022)	Yes (Digital Uzbekistan 2030)

Source: Data compiled from World Bank (2024), ITU (2023), and national digital strategy documents. See full citations in References

Kazakhstan has emerged as a digital frontrunner in the ECO region, propelled by its Kazakhstan has clearly pulled ahead as the ECO region's digital frontrunner. With the backing of strong state capacity and energy revenues, it started investing heavily in ICT as early as the mid-2010s. The "Digital Kazakhstan 2018–2022" strategy wasn't just branding, it came with real infrastructure commitments and institutional reforms (Government of Kazakhstan, 2017). By 2023, more than 90% (ITU, 2023; DataReportal, 2023) of public services were accessible online, and Kazakhstan had among the highest internet penetration and broadband speeds in Asia. It also anchored regional connectivity: Almaty became home to a key Internet Exchange Point, and Kazakhstan helped initiate the Trans-Caspian "Digital Silk Road" cable linking to Azerbaijan (World Bank, 2023a).

But Kazakhstan didn't just upgrade its own systems, it exported them. Its e-government architecture and digital ID systems were shared with neighbors through initiatives like KazAID (KazAID, 2022), along with technical assistance and regulatory templates In trade policy, it pushed for e-commerce and cybersecurity harmonization across borders (ADB, 2022). What Kazakhstan's experience shows is this: when digital infrastructure is treated as a strategic and regional asset, not just a domestic fix, it opens new lanes for influence and resilience.

Uzbekistan came to digital reform a bit later but moved fast. Since 2017, it's gone through a wave of liberalization. The government's "Digital Uzbekistan 2030" program, launched in 2020, was paired with the creation of a new Ministry of Digital Technologies (Government of Uzbekistan, 2020). Telecom sector reform, most notably the 2023 Telecom Law (U.S. Department of Commerce, 2024) broke monopolies and triggered real competition, driving down prices and boosting access.

More importantly, Uzbekistan invested in people. IT Parks were set up across the country to nurture startups, and targeted policies encouraged private sector growth (IT Park Uzbekistan, 2023). By 2023, more than 60% of public services were digitalized. The country also leaned into regional engagement joining the World Bank's Digital CASA initiative and hosting training programs for Afghan and Kyrgyz ICT officials (World Bank, 2022; ITC, 2023). Uzbekistan's case shows that when policy, market liberalization, and tech training move in sync, visible results follow—fast.

So what does this mean for Tajikistan? First, ad hoc reforms won't cut it. Both Kazakhstan and Uzbekistan succeeded because they had coherent strategies backed by real investment and institutional reform. Tajikistan will need to match that level of ambition especially in broadband infrastructure, digital skills, and regulatory modernization. Second, both countries show the value of outward-facing strategies. Kazakhstan and Uzbekistan benefited from regional platforms and donor partnerships; they didn't build in isolation. Tajikistan can similarly leverage regional programs and proven solutions to sidestep some of the high fixed costs of experimentation.

Finally, and perhaps most importantly, both countries reframed digital sovereignty not as full independence, but as shared capacity through cooperation. Neither tried to "go it alone." Instead, they strengthened national control by investing in regional public goods: from fiber cables to cloud services to training programs. For Tajikistan, the implication is clear: regional integration isn't a threat to digital sovereignty, it may be the only viable path to achieving it (Shoker, 2022; Chander & Sun, 2021). The next section draws on these insights to outline specific ways ECO countries, including Tajikistan, can co-invest, coordinate, and advance together in their digital transformation journeys.

4. Policy Recommendations: Toward a Regional Digital Ecosystem

The comparative analysis above reveals a clear digital divide within the ECO region. To capitalize on the promise of "digital corridors" and ensure no member state is left behind, a shift toward a more integrated regional digital ecosystem is needed. We outline here a multi-pillar strategy through which Tajikistan, in concert with its ECO partners could overcome its domestic constraints. The focus is on practical steps to pool resources and harmonize policies, thereby operationalizing the idea of shared digital sovereignty. The recommendations center on three main pillars: (1) harmonize digital policies and standards, (2) invest in shared digital infrastructure and capacity, and (3) build regional knowledge-sharing mechanisms. Each is discussed below in terms of rationale and proposed actions, with an emphasis on how they address Tajikistan's challenges while benefiting the region.

4.1 Harmonize Digital Policies and Standards

One foundational pillar for regional digital integration is the alignment and harmonization of regulatory frameworks across ECO member states. At present, divergent national rules create friction in cross-border digital interactions, ranging from incompatible electronic signature standards to inconsistent data protection regimes and varying licensing requirements for digital services. Regulatory harmonization would help transform the ECO space into a more coherent and functional digital market, thereby improving trust, reducing transaction costs, and fostering deeper economic interdependence. For a country like Tajikistan, aligning with the more advanced frameworks of its neighbors offers an opportunity to "import" good regulatory practices and leapfrog certain domestic constraints. A first area of focus is the mutual recognition of electronic documents and signatures. If a digital signature or business license issued in one ECO country were to be legally recognized in another, it would greatly facilitate paperless trade and cross-border e-commerce. Encouragingly, steps in this direction are already underway under the UN's Framework Agreement on Facilitation of Cross-

Border Paperless Trade in Asia and the Pacific, to which several ECO countries are party or have expressed interest (UNESCAP, 2022).

Second, regional compatibility in data privacy and cybersecurity standards is essential. A shared understanding of how personal data is handled and how cybersecurity threats are managed would improve trust among businesses and consumers operating across ECO borders. For example, if Tajikistan enacts data protection legislation aligned with international norms and if neighboring states do likewise companies operating in multiple jurisdictions would face fewer legal uncertainties. Similarly, a regional protocol on cybersecurity information-sharing and coordinated incident response would significantly enhance resilience against cross-border digital threats.

Third, the harmonization of digital trade regulations, including electronic payments, consumer protection in e-commerce, and simplified customs procedures for digital goods, can reduce regulatory friction. These are particularly critical for landlocked states like Tajikistan, which depend heavily on regional trade corridors. The easier it becomes for Tajik entrepreneurs and small firms to engage in digital commerce with partners across the ECO region, the more inclusive and competitive Tajikistan's digital economy will become.

By pursuing such harmonization, ECO members could establish a unified regional digital market. For Tajikistan, entering this larger market mitigates the disadvantage of its small domestic economy, giving its digital entrepreneurs access to millions more customers. At the same time, harmonization does not require heavy investment. It is largely a matter of political coordination and legal updates, making it a cost-effective strategy. Importantly, aligning policies is also a confidence-building measure. It signals trust and common purpose, which can spill over into deeper cooperation. In sum, regulatory harmonization is a low-cost but high-impact strategy to create a more level playing field and integrate Tajikistan into the regional digital economy. It sets the institutional foundation upon which physical infrastructure and platforms (the next pillar) can then interconnect.

4.2 Invest in Shared Digital Infrastructure

The second pillar is to develop and interconnect digital infrastructure across the region, treating it as a shared foundation for the ECO's digital economy. Just as ECO countries have historically collaborated on physical connectivity projects (roads, railways, power grids), they can now collaborate on the less tangible but equally critical domain of digital connectivity. A prime example would be the establishment of regional Internet Exchange Points (IXPs) and data centers that serve multiple countries. At present, much of Central Asia's internet traffic is routed through servers outside the region (in Europe or Russia), causing inefficiencies and high transit costs due to long distances and intermediary fees (World Bank, 2024a).

If ECO members co-invest in regional internet hubs, for instance, a major IXP in Almaty or Tashkent where all member countries' networks interconnect, local traffic could be exchanged within the region, greatly improving speeds and reducing dependency on external networks. Tajikistan, for example, could exchange internet traffic with Uzbekistan or Kazakhstan at a nearby regional hub instead of routing everything via Moscow or Frankfurt. This would lower latency (improving user experience for online services) and cut costs for local ISPs and users.

Another priority is to build a regional fiber-optic backbone. Plans are already underway in Kazakhstan and Azerbaijan to enhance fiber routes (e.g., the Trans-Caspian cable), and extending these to Kyrgyzstan, Tajikistan, and further to Afghanistan, Pakistan, and Iran would create a robust mesh of fiber-optic links in the ECO space (U.S. Department of Commerce, 2024a). One viable option would involve ECO Regional Fiber Ring , connecting all member states' capital cities with high-

capacity fiber infrastructure and multiple cross-border nodes for redundancy. Such a network would ensure that even if one country faces an outage or disruption, traffic could be rerouted through regional partners. For Tajikistan, being part of a regional fiber ring would provide alternative pathways to global internet networks (bypassing its over-reliance on any single transit country) and improve its bargaining position for bandwidth pricing.

Investing in shared data centers and cloud infrastructure is another avenue. Rather than each country building its own expensive Tier-III data center, ECO states could collaborate to establish a few regional data hubs where computing resources are pooled. A data center in one country could host disaster recovery backups or regional digital services that all members use. For example, a jointly managed ECO cloud platform might support applications like a regional digital payment system or an e-learning library accessible to all member states. Smaller countries like Tajikistan and Kyrgyzstan, which on their own cannot justify large data center projects, would benefit immensely from access to such shared infrastructure (ADB, 2023; World Bank, 2024b). This approach treats critical digital infrastructure as a regional public good. Of course, shared infrastructure raises questions about governance and trust, countries need assurances that their data and services in a foreign-based center are secure. Co-ownership models and legal safeguards can mitigate these risks. With proper safeguards, the economies of scale from pooling infrastructure far outweigh the downsides: all members get more reliable and robust services at lower unit cost, and the region becomes more self-sufficient.

In addition, alternative and emerging technologies should complement terrestrial fiber. Many ECO countries have remote mountainous or desert areas (Tajikistan's Pamir region, Pakistan's Karakoram, etc.) where laying fiber is difficult and not economical. Here, members could collaborate on satellite broadband solutions. The rise of low-earth orbit satellite constellations (like SpaceX's Starlink) offers new opportunities for high-speed internet in hard-to-reach locales. An ECO-wide initiative to jointly procure satellite capacity or establish regional ground stations could ensure that every member, even those with challenging geography, can connect their rural communities. For example, if Tajikistan, Kyrgyzstan, and Afghanistan together negotiate with a satellite provider, they might secure a better deal or coverage plan than each acting alone. Pooling demand in this way fosters collective digital sovereignty, the region becomes less dependent on external terrestrial routes and can guarantee minimum connectivity for all its people. A recent commentary on Gulf states' connectivity noted that "*by pooling resources, countries can create an interconnected and resilient network, fostering digital sovereignty while supporting economic integration across the region*" (ORF, 2024). This insight equally applies to Central Asia.

To move these ideas forward, ECO as an organization can play a coordinating role. It could help mobilize joint funding (approaching development partners like the World Bank or Asian Development Bank on behalf of multiple countries) and ensure technical standards compatibility.

The World Bank's support for the West Africa Regional Communications Infrastructure Program, for instance, shows that multilateral lenders are keen to fund regional digital integration. In fact, the World Bank and ADB are already financing pieces of Central Asian connectivity (e.g., Digital CASA) (World Bank, 2024a), so building on and linking these efforts under an ECO umbrella would be timely. In sum, by planning and investing collaboratively, ECO members can create a meshed regional digital network where data flows freely and reliably across borders, turning the region's geography from a liability (fragmented, landlocked networks) into a strength (integrated "digital silk roads") (World Bank, 2024b).

4.3 Build Capacity and Share Knowledge

The third pillar is about building people, not just platforms. Human and institutional capacity must rise together across the region—or no digital reform will stick. Technology and law alone are not enough, there is a need to elevate the digital know-how in all member states so that initiatives are implemented effectively. Currently, there is a wide variance in digital capacity among ECO states: some have advanced e-government agencies and thriving tech sectors, while others face acute skill shortages. A regional approach to knowledge transfer can help level this playing field.

Start with something practical. ECO should set up a *Digital Economy Working Group* under its Secretariat that meets regularly, whether online or in-person. Not another talk shop, but a place where IT officials, telecom regulators, and digital entrepreneurs across ECO share blueprints, not just bullet points. This platform would bring together officials, IT experts, and industry representatives from each country to exchange experiences and coordinate joint initiatives. It could institutionalize the currently ad-hoc exchanges, for example, instances where Kazakh experts who built e-government systems informally advise their Tajik counterparts, or Uzbek telecom regulators share lessons with Afghan officials. By making such exchanges systematic (through workshops, study tours, or short-term staff secondments), countries can learn from each other's successes and failures much faster than if each works in isolation. The knowledge gap on specific issues, say, how to implement a one-stop government e-service portal or how to draft effective data protection regulations, can be closed through direct mentoring by a neighbor that has done it before. This sort of South-South learning is often more relatable and practical than generic international advice.

Encouragingly, some cooperation is already happening. For instance, Uzbekistan's IT Park has hosted delegations from Kyrgyzstan and Tajikistan to showcase its startup incubation model (ITC, 2023), while Kazakhstan's Government Digital Academy opened training slots for regional officials (ITC, 2023). These examples show the appetite for peer learning in the region. ECO can add value by scaling up and formalizing such efforts, potentially by creating regional training programs or centers of excellence. Regional hackathons and tech forums, like an annual 'ECO Digital Challenge', could catalyze youth innovation and build stronger cross-border networks in the ICT sector.

For Tajikistan, tapping into the expertise of Kazakhstan, Uzbekistan, and others is a quick win to build its human capital. Rather than struggling to train all needed specialists domestically, Tajikistan can send trainees to courses in neighbors' institutions, use curricula developed elsewhere, or even outsource certain digital services initially while its own capacity ramps up. Over time, as Tajikistan's practitioners gain experience, they can contribute back to regional knowledge networks, creating a virtuous cycle. International players are already on board. UN-ESCAP's APCICT ran digital governance training for Central Asia, and ITU regularly supports knowledge exchanges (UNESCAP, 2022; ITU, 2023). Tajikistan can tap these networks now, not wait for perfect domestic rollout. By coordinating with these actors, ECO could ensure that capacity-building programs are tailored to the region's needs and inclusive of the least developed members.

In implementing all these recommendations, neutral phrasing and mutual respect are key. The goal is not for one country to dominate or impose its model, but for ECO members to recognize their interdependence and jointly elevate their digital profiles. Tajikistan may position itself as a regional facilitator by proposing some of these measures at the next ECO ministerial meeting, framing them not as demands, but as collaborative opportunities that align with ECO's stated vision. For example, it could volunteer to co-chair a working group on digital integration or host a pilot regional data center (with international support) as a test case for shared infrastructure governance. Tajikistan could position itself as a credible convener of ECO digital coordination, garner goodwill, and attract the technical assistance needed to execute these plans.

Digital deficits aren't just national, when Tajikistan stays offline, it drags the region with it. And when it connects, it expands the whole market. Sovereignty in this space isn't about fencing off servers. It's about showing up, shaping the rules, and sharing the gains. Tajikistan's lack of broadband or cybersecurity expertise isn't just its problem. It affects the whole region's connectivity and trust. Conversely, a more digitally enabled Tajikistan opens new markets and routes that benefit neighbors. By embracing this perspective, Tajikistan and its ECO partners can turn collective weaknesses into shared strengths. Ultimately, regional integration does not dilute digital sovereignty for small states like Tajikistan, it redefines it. Sovereignty, in this context, is not isolation, but the capacity to participate in and shape shared regional systems.

Of course, pursuing regional integration is not without risks. Differences in national digital strategies, political mistrust, and varying levels of institutional maturity across ECO members could complicate implementation. Additionally, concerns about data sovereignty and control over shared infrastructure may deter some countries from fully participating. These risks can be mitigated through clear legal agreements, transparency, and the establishment of neutral governance structures for regional digital assets.

5. Conclusion

Tajikistan's digital transformation will not succeed in isolation. The experiences of its ECO neighbors make one thing clear: regional alignment is no longer optional; it is the only viable path for countries constrained by geography and scale. They can continue with fragmented, country-by-country digitalization, which will likely see the smaller and poorer states lagging or they can embrace a more unified regional approach, leveraging their collective strengths. A coordinated approach could accelerate digital growth and reduce gaps between ECO's advanced and lagging members. Tajikistan's recent policy momentum is a welcome sign of political commitment. By channeling that momentum into regional cooperation, Tajikistan and the ECO can create a "digital Silk Road" that ensures even the most remote and landlocked communities are connected to the global digital economy. Such an outcome would illustrate how true digital sovereignty for a small state can be achieved collectively rather than individually: by pooling resources and aligning with neighbors, Tajikistan can exercise greater effective control over its digital destiny than it ever could in isolation (Shoker, 2022; Hulkó, Kálmán, & Lapsánszky, 2025). This case thus provides a nuanced contribution to the literature on small states in an era of digital globalization, highlighting that sovereignty and interdependence are not mutually exclusive, but in fact, for developing countries, often two sides of the same coin.

In closing, the Tajikistan example underscores a broader insight: in the digital era, regional integration is not just a political ideal but a practical necessity for countries facing capacity constraints. A cooperative regional strategy offers scale, efficiency, and shared knowledge that no single small economy could muster alone. As ECO moves forward, concrete steps towards a regional digital ecosystem will be crucial. If implemented, the recommendations outlined here from policy harmonization to shared infrastructure and capacity-building could collectively lift the region's digital performance. Success will require political will, trust, and sustained effort, but the payoff would be significant: a Central Asia (and broader ECO space) that is digitally connected, economically vibrant, and more resilient in the face of global technological shifts. Tajikistan, by actively embracing this regional vision, stands not only to overcome its own digital challenges but to become a key node in a stronger, smarter network of nations. This reaffirms the core proposition of this paper: that regional integration, particularly through shared digital infrastructure and harmonized governance, redefines sovereignty as collective capacity, not isolation.

6. Contributions and Limitations

This study contributes to literature by applying the concept of digital sovereignty to small states in a regional context. Its limitation lies in its primarily qualitative nature; future research could explore quantifying the impacts of regional digital investments or modeling trade effects of digital corridors.

Author Note

Jovid Ikromi is the Director for International Economic Cooperation at the Ministry of Economic Development and Trade of Tajikistan. He leads intergovernmental work on digital economy policy, trade negotiations, and regional economic integration within ECO and Central Asia. He previously served as Head of the Economics Department at the Parliament of Tajikistan and as a member of expert councils under the IPA CIS. Dr. Ikromi holds a Ph.D. in International Economics and a Master of Public Policy from the London School of Economics (LSE).

References:

1. ADB. (2023a). *Digital Strategy 2030: Strengthening Digital Infrastructure in Asia and the Pacific*. Asian Development Bank. https://www.adb.org
2. ADB. (2023b). *Regional ICT infrastructure review: Central and South Asia*. Asian Development Bank.
3. Chander, A., & Sun, H. (2021). *Sovereignty 2.0*. UC Davis Law Review, 54(3), 101–152.
4. Collier, P. (2007). *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*. Oxford University Press.
5. DataReportal. (2023). *Digital 2023: Kazakhstan – Global Digital Insights*. https://datareportal.com/reports/digital-2023-kazakhstan
6. DataReportal. (2024a). *Digital 2024: Tajikistan – Global Digital Insights*. Retrieved from: https://datareportal.com/reports/digital-2024-tajikistan
7. ECO. (2021). *Fourteenth ECO Summit Declaration*. Economic Cooperation Organization. Retrieved from: https://eco.int
8. ECO. (2023). *Sixteenth ECO Summit – Tashkent Declaration*. Economic Cooperation Organization. Retrieved from: https://eco.int
9. Economic Cooperation Organization (ECO). (2021). *Fourteenth ECO Summit Declaration: Regional Economic Cooperation in the Aftermath of COVID-19*. ECO Secretariat.
10. Economic Cooperation Organization (ECO). (2023). *Sixteenth ECO Summit – Tashkent Declaration: Strengthening Regional Economic Integration through Digital Connectivity*. ECO Secretariat.
11. eGov.kz. (2023). *Kazakhstan's electronic government portal*. Retrieved from: https://egov.kz
12. Floridi, L. (2020). The fight for digital sovereignty: What it is, and why it matters. *Philosophy & Technology, 33*(3), 369–378. https://doi.org/10.1007/s13347-020-00423-6
13. Hulkó, G., Kálmán, J., & Lapsánszky, A. (2025). The politics of digital sovereignty and the EU's legislation: Navigating crises. *Frontiers in Political Science*, 7, Article 1548562. https://doi.org/10.3389/fpos.2025.1548562
14. Ikromi, J. Z. (2022). *Current Issues of Digitalization in Tajikistan*. Outlines of Global Transformations: Politics, Economics, Law, 15(6), 214–237. https://doi.org/10.31249/kgt/2022.06.11
15. International Telecommunication Union (ITU). (2023). *Facts and figures: Asia-Pacific broadband statistics*. Retrieved from: https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx

16. International Trade Centre. (2023). *Central Asia ICT skills exchange initiative*. Retrieved from:https://intracen.org/news-and-events/news/central-asia-ict-skills-exchange-initiative
17. ITU. (2022). *ICT Development Index Country Report: Tajikistan*. Geneva: International Telecommunication Union.
18. Limão, N., & Venables, A. J. (2001). Infrastructure, geographical disadvantage, transport costs, and trade. *World Bank Economic Review*, 15(3), 451–479. https://doi.org/10.1093/wber/15.3.451
19. Observer Research Foundation (ORF). (2025). *Harnessing satellite internet for resilient digital connectivity in the Gulf*. ORF Middle East Commentary.
20. Shoker, A. (2022). Digital sovereignty strategies for every nation. *Applied Cybersecurity & Internet Governance Journal, 1*(1), 1–17.
21. TheGlobalEconomy. (2024). *Uzbekistan Internet Users – Data and Chart*. Retrieved from: https://www.theglobaleconomy.com
22. U.S. Department of Commerce. (2024). *Tajikistan – Information and Communication Technologies (ICT)*. International Trade Administration. Retrieved from: https://www.trade.gov/country-commercial-guides/tajikistan-information-and-communication-technologies
23. UN DESA. (2022). *E-Government Survey 2022: The Future of Digital Government*. United Nations Department of Economic and Social Affairs. Retrieved from: https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2022
24. UN Secretary-General's Panel on Digital Cooperation. (2020). *The Age of Digital Interdependence*. Retrieved from: https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf
25. UNESCAP. (2022). *Asia-Pacific Digital Transformation Report*. Retrieved from: https://www.unescap.org/kp/2022/asia-pacific-digital-transformation-report
26. United Nations Conference on Trade and Development (UNCTAD). (2022). *Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific*. United Nations.
27. USAID. (2023). *Digital ecosystem country assessment: Tajikistan*. United States Agency for International Development. Retrieved from: https://www.usaid.gov/digital-development/DECA
28. World Bank. (2021). *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience*. Retrieved from: https://globalfindex.worldbank.org
29. World Bank. (2023). *Improving regional digital connectivity in Central and South Asia*. Retrieved from: https://www.worldbank.org/en/news/feature/2023/09/27/improving-regional-digital-connectivity-central-south-asia
30. World Bank. (2024a). *Improving Regional Digital Connectivity in Central and South Asia*. Retrieved from: https://www.worldbank.org
31. World Bank. (2024b). *Strengthening Digital Public Infrastructure and Digital Skills in Tajikistan*. Retrieved from: https://www.worldbank.org/en/news/press-release/2024/12/17