Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

Vol. 4 No. 1 (January) (2026)

The impact of Technical infrastructure on the Digital Economy in Developed countries of Asia

Abdul Zahir
Department of Economics, Kohat University of Science & Technology, Kohat, Pakistan

Dilawar Khan (Corresponding Author)
Department of Economics, Kohat University of Science & Technology, Kohat, Pakistan
Email: dilawar@kust.edu.pk

Ihtisham Ul Haq
Department of Economics, Kohat University of Science & Technology, Kohat, Pakistan

ABSTRACT
In recent decades, the digital economy has significantly contributed to global economic growth. Asian developed nations have increasingly depended on digital technologies to improve productivity, competitiveness, and economic transformation. Despite possessing relatively advanced economic frameworks, discrepancies in technical infrastructure, network coverage, and subsidiary digital services continue to hinder the development of the digital economy in these nations. This study objectively examines the influence of technical infrastructure on the digital economy in industrialized Asian nations from 2001 to 2022. The results of diagnostic tests suggest the use of cross-sectionally augmented autoregressive distributed lags (CS-ARDL) model. The results of CS-ARDL display that technical infrastructure, modern technology access, return on telecom investment and technological innovations has statistically significant role in approving digital economy in developed countries of Asia. The result also suggest that the model is dynamically stable and any short run disequilibrium can be readjusted in the long run. Finally, the study put forward some valuable suggestions for policy makers.

Keywords: Digital Economy; Technical Infrastructure; Modern Technology Access; Return On Telecom Investment; Technological Innovations; CS-ARDL.

Introduction

The digital economy has become a major driver of economic growth, innovation, and competition in the modern global economy. The digital economy is a broad term for economic activities that use digital technologies, digital networks, and data-driven production and consumption. It has changed how markets operate and how people interact with one another Gkouskos, G. (2025). Countries in Asia with advanced economies have made digital transformation a top priority. They are spending money on technology platforms, connectivity, and services that enable digital trade, e-governance, and digital innovation. But the extent to which these benefits actually occur depends a lot on how good and available the technical infrastructure is, such as broadband connectivity, network coverage, and reliable electricity systems. Even though many Asian developed economies are very advanced, problems with technical infrastructure still affect the speed and value of digital economic growth.

Technical infrastructure includes the essential technologies and systems—such as

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 4 No. 1 (January) (2026)

broadband networks, mobile connectivity, and electrical supply, that facilitate the operation, accessibility, and efficiency of digital services and platforms. In the context of the digital economy, infrastructure is essential for delivering digital services to businesses and customers, minimizing transaction costs, and improving productivity Gkouskos, G. D. (2025). A resilient digital infrastructure enables high-speed internet access, supports new technologies like 5G, and undergirds modern services such as cloud computing, e-commerce, and e-government. Consequently, technical infrastructure is widely recognized as a crucial factor influencing the performance of the digital economy in both developed and developing settings.

Empirical studies in developed economies highlight the importance of infrastructure for improved economic outcomes. Research on OECD countries shows that greater broadband adoption has a significant effect on GDP growth, demonstrating how upgraded network infrastructure can directly affect the economy (Koutroumpis et al., 2019). A 4.34% increase in GDP was linked to better broadband access in OECD countries. This shows how broadband and related network technologies can help the economy grow. This data shows that technical infrastructure not only makes it easier for people to use digital technology but also improves the overall functioning of the economy (Briglauer et al., 2025).

In the Asian context, while research frequently highlights overarching aspects of digitalization, infrastructure is fundamental to digital development trajectories. International organizations report that connectivity, especially broadband internet, serves as the foundation of the digital economy, bridging urban-rural divides and facilitating digital participation for individuals and small businesses. Sefrina, M. (2024). These findings, while applicable to Southeast Asia in general, underscore a fundamental issue: the potential of digital technologies for economic growth cannot be fully realized without robust, reliable infrastructure. Furthermore, in developed Asian economies such as South Korea, Japan, and Hong Kong, investments in digital infrastructure support advanced digital platforms and services that enhance innovation and productivity. Through devices and platforms, modern technology makes infrastructure more useful by turning connectivity into tools. Research reveals that infrastructure expansion isn't enough. We need affordable, easy-to-use gadgets, platforms, training, and electronic services to make it work. M. Hilko (2021).

To keep getting money, telecommunications companies need to show a good return on investment (ROI). When telecommunications companies achieve a good return on investment (ROI), they are more likely to expand their networks into areas with poor service. Research shows that public-private partnerships, such as Africa's Universal Service Fund and East Africa's tower-sharing models, can attract private investment by demonstrating that consumption can be a reliable source of income (Bakare, A., 2024, Rasheed et al., 2025b).

While the importance of infrastructure is approved, the literature lacks a comprehensive analysis regarding the specific effects of technical infrastructure on the digital economy in industrialized Asian countries over extended periods. Consequently, empirical research is necessary to delineate the influence of technical infrastructure while accounting for additional variables that affect the digital economy, including technological accessibility and innovation indicators.

This study aims to fill this gap by examining the impact of technical infrastructure on the digital economy across a panel of industrialized Asian countries from 2001 to 2022. This analysis underscores the importance of critical infrastructural components, including network coverage and reliable electrical access, in shaping digital economic outcomes.

The study employs sophisticated panel econometric techniques to furnish compelling evidence concerning the influence of fundamental infrastructure on enabling digital transformation in relatively developed Asian settings. This is especially important for policymakers who want to make the digital world readier and more competitive amid rapid technological change.
This study contributes substantially to the growing body of literature on the digital economy and empirical research centered on its critical components, including technical infrastructure, access to contemporary technology, and returns on telecommunications investment, particularly in industrialized Asian countries. This study employs the Cross-Sectionally Augmented ARDL (CS-ARDL) methodology to examine panel data from 2001 to 2022, producing significant short- and long-term insights into the complex relationship among infrastructure, innovation, and digital growth. Additionally, it presents a composite technical infrastructure index that includes electricity access and network coverage, enhancing the technique for evaluating readiness for digitalization. The results not only enrich scholarly discussion of digital transformation in developed Asian nations but also provide strategic guidance for policymakers committed to promoting comprehensive, sustainable digital economic initiatives.
The remaining study proceeds as follows: the next section reviews previous research studies based on key theoretical frameworks and empirical research about the digital economy. The third section explain the research methodology covering data sources, variable development, and the econometric model known as CS-ARDL employed for analysis. The fourth section presents the results and empirical findings, analyzing both short-run and long-run effects. The last section concludes with a summary of the principal findings, policy recommendations, and paths for further research.

Literature Review

The digital economy is one of the most important topics in modern economic studies because of the rapid spread of digital technologies worldwide. There has been extensive research on the importance of technical infrastructure for the growth of the digital economy. This includes reliable power, broadband network coverage, and internet access. (OECD, 2024). Technical infrastructure enables people and businesses to conduct online transactions, access information and services, and use new technologies that help the economy grow and produce more goods. This review examines both theoretical and real-world evidence on how technical infrastructure affects the digital economy. It focuses on evidence relevant to developed countries.
Early empirical research indicated a favorable correlation between infrastructure development and economic performance. Roller and Waverman's (2001) seminal study on telecommunications infrastructure found that increased network capacity significantly accelerated GDP growth in OECD countries, laying the foundation for further research into the interplay between broadband and the digital economy (Madden & Savage, 2018). Koutroumpis (2019) subsequently validated this finding by demonstrating that improvements in broadband adoption lead to measurable GDP growth, particularly in high-income economies, underscoring the economic significance of digital connectivity. These studies collectively demonstrate that connection infrastructure, while providing social benefits, functions as a productive asset that enhances economic output by reducing transaction costs, expanding market access, and promoting innovation (Turner & Waverman, 2001; Koutroumpis, 2019).
Information and communication technologies (ICTs) are the backbone of the digital economy, and many studies investigate how ICT development affects economic growth.

ISSN Online: 3007-3154
ISSN Print: 3007-3146

Vol. 4 No. 1 (January) (2026)

The OECD reports that ICT adoption and integration across enterprises and industries contribute significantly to productivity and competitiveness, with advanced economies seeing outsized gains due to considerable infrastructure and institutional support (Spiezia, 2011). The OECD's Digital Economy Outlook indicates that ICT industries have surpassed total economic output in many high-income nations, underscoring the importance of digital infrastructure in modern economies (Sysoyeva et al.,2025; Rasheed et al., 2025a).

The literature also declares that the effect of ICT infrastructure depends on the situation. For example, broadband penetration and internet usage have been shown to have a greater effect on economic growth in high-income areas where other factors, such as skilled workers and innovation systems, are already in place. In these situations, better infrastructure makes it easier for businesses to adopt digital technologies such as e-commerce, cloud computing, and data analytics (Sarangi et al., 2020).

A number of empirical studies use advanced economies to extract particular findings. Research on OECD member states indicates that broadband and mobile infrastructure substantially enhance GDP, with a more pronounced effect in high-income nations, which can effectively utilize digital connectivity for economic benefits (Koutroumpis, 2019). The causal relationship between network infrastructure and economic performance underscores that investments in technological systems can produce enduring economic advantages in environments with established absorptive capacity for technology adoption. Still, some studies show that the link between ICT infrastructure and economic outcomes is not as simple as it seems. The impact of ICT development on economic growth in OECD countries was positive, but the effects varied across indicators and methods. This shows that infrastructure alone may not be enough to boost the economy if other factors, such as institutional support and innovation ecosystems, are weak (Verma et al., 2023). Modern technology, such as smartphones, computers, and digital platforms, enables people to interact with technology online. The Technology Acceptance Model was made by Davis in 1989. It shows that people decide to use new technology based on how simple and helpful they think it is. Davis, F. D. (1989). Ensuring a strong return on telecom investment (RTI) is essential for drawing the private capital required for infrastructure development. Paelo, A., & Robb, G. (2020) demonstrate that telecommunications operators with consistent returns on investment are better positioned to expand services into underserved areas.

Technical infrastructure and economic performance are closely linked, though there are many gaps in the literature for developed Asian economies. First, most empirical research on ICT measures or on worldwide samples makes it difficult to extricate infrastructural components such as network coverage and electrical access in sophisticated Asian environments. Second, while infrastructure's macroeconomic advantages are well documented, few empirical models explicitly incorporate indicators of the digital economy, including digital services, platforms, and economic transformation. Despite significant technological progress and investment in recent decades, the long-term dynamics of the impact of technical infrastructure on the digital economy in developed Asian countries are unknown.

The literature repeatedly demonstrates that technical infrastructure, particularly broadband networks and connectivity supports digital economic development and economic growth in industrialized economies. Its extent and processes vary by area and depend on complementary institutional and economic conditions. The findings emphasize the need to study how infrastructure components affect the digital economy, particularly in industrialized Asian countries and also how support the investment viability, and innovation enrich the digital economy.

Materials and Methodology

To achieve the objective of this study, balanced panel data from 2001 to 2022 was used to investigate the impact of Technical Infrastructure on the Digital Economy in Developed countries of Asia. The dependent variable of this study is digital economy. The Independent variable of this study are Technical Infrastructure, Return on Telecom investment, and Modern technology Access. The technical infrastructure index was composed of two indicators i.e., Access to electricity, and network coverage of the telecom sector. Indexes of technical infrastructure and digital economy was constructed through principal component analysis (PCA). Technical infrastructure means access to electricity and mobile network coverage (Kuek et al., 2015). The study by Yonazi et al. (2012) suggests a correlation between the digital economy and telecommunications investment returns, remarking that the digital economy requires significant investments in broadband networks and global connectivity, which the private sector cannot fund due to integral risks and constrained returns on investment. As a result, the telecommunications sector is seen as a means to improve the digital economy. The International Telecommunication Union (2015) says that access to modern technologies such as mobile broadband, fixed broadband, and high bandwidth speeds is very important for the growth of the digital economy. Table 1 presents the variables' names, data sources, and measures

Table 1. Description of variables

Variables	Abbreviations	Measurement/Meaning	Source
Digital Economy: This index was constructed from the following three dimensions. 1. Digital infrastructure • Safe internet servers (per one million people) • Fixed broadband endowment (per one hundred people) • Firm telephone subscription (per one hundred people) • Cellular mobile phone endowment (per one hundred people) • persons using the Web (percentage of population)	DE	Index • Network environment security, supervision & governance • Upgradation of the information infrastructure • Development of the information infrastructure • Improvement of the information infrastructure • Internet user base	World Bank (2023)
2. Digital Economy Openness • High technology exports (%age of fabricated products		• Openness of the web economy, international ambitiousness of	World Bank (2023)

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 4 No. 1 (January) (2026)

exports) • Information and communication technologies goods exports (total goods exports) 3. computerize technology Environment • Registration in higher education organization (%age of total community) • R&D expenditures (%age of national income (GDP)		technology • Abundance of the internet and web professionals • Digital technology innovation environment	World Bank (2023)
Technical Infrastructure: Technical infrastructure index was constructed from the two factors. • Access to electricity • Network coverage	TI	Index • Percentage of total population • Percentage of network coverage	World Bank (2023) International Telecommunication Union (2023)
Return on Telecom Investment	RTI	Constant US Dollar	International Telecommunication Union (2023)
Technological Innovation	TI	Total patent Application (Residents/Nonresidents)	World Bank (2023)
Modern Technology Access	MTA	Bandwidth Speed, Mbit/s	International Telecommunication Union (2023)

Before estimating the causal relationship between the Digital Economy and other variables, cross-sectional dependence tests and unit root tests were conducted. Most economic time series are nonstationary or exhibit a unit root (Rafique et al., 2024). Regressing a nonstationary variable on another nonstationary variable results in a spurious regression. Unit root tests are employed to detect the presence of a unit root in a variable. First-generation panel root tests assume that the cross-sectional units within the panel are independent, whereas in practice they are often correlated. To address the issue of correlation among cross-sectional units, second-generation unit root tests were employed. Prior to applying second-generation panel unit root tests, a cross-sectional dependence test was conducted to assess the correlation among the cross-sectional units (countries). The presence of cross-sectional dependence renders estimators consistent but inefficient. Therefore, cross-sectional dependence results in biased standard errors. In the context of countries as cross-sectional entities, cross-sectional dependence may arise owing to their increasing financial and economic integration. The Pesaran cross-sectional dependence (CSD) test was performed to assess the presence of cross-sectional dependence. The CIPS test, introduced by Pesaran (2007), was employed to examine the presence of unit roots in the variables of this study. A test of slope homogeneity was also performed, and the results indicate that the slopes are heterogeneous. The outcomes of these diagnostic assessments indicate the appropriateness of employing the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model; consequently, the CS-ARDL approach was utilized to empirically examine the determinants of the digital economy. The Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model is an effective tool for analyzing data collected from multiple sources over different time periods. It extends the traditional ARDL methodology by accounting for potential interactions across groups and acknowledging that changes may not occur uniformly across units. This model examines the averages of the dependent and independent variables to eliminate common factors that may simultaneously influence all groups, such as global events. It integrates historical and current data within each unit to analyze both short-term patterns and long-term correlations (Chudik and Pesaran, 2015).

Results and Discussion.

This study empirically investigated the impact of technical infrastructure on the Digital Economy in Developed Countries of Asia. Table 1 presents the descriptive statistics of the variables employed in this study. The descriptive statistics highlight the key characteristics of the data series. The series used in study Digital Economy, Technical Infrastructure, Return on Telecom investment, technological innovation, and Modern technology Access. The mean value of the digital economy is 4.16, technical infrastructure 4.15, return on telecom investment 22.68, technological innovation 8.39, and modern technology access is 11.87.

Table 4.6 Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
DE	4.16	1.68	1.00	7.65
TII	4.15	0.48	0.76	8.89
RTI	22.68	1.30	19.63	27.74
MTA	11.87	3.49	3.52	18.83
TI	8.39	2.74	4.19	15.36

Table 2 presents the results of the cross-sectional dependence tests. The Pesaran CD test was employed in this study, indicating the presence of cross-sectional dependence among the selected variables. When examining the statistics for DE, TII, RTI, and MTA, we observe highly significant results ($p = 0.000$). This indicates a significant dependence among these cross-sectional units.

Table 3. Pesaran CD test

Variable	CD-test	p-value
DE	20.56	0.00
TII	17.92	0.00
RTI	13.58	0.00
MTA	20.33	0.00
TI	6.13	0.00

After examining the cross-sectional dependence of the data, unit roots in the dataset were identified. When evaluating stationarity in panel data, it is essential to account for cross-sectional dependence, which requires a unit root test tailored to this context.

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

Vol. 4 No. 1 (January) (2026)

Conventional first-generation unit root tests are insufficient in the presence of cross-sectional dependence. Consequently, this study employed a second-generation unit root test, specifically the Cross-sectionally Implied Panel Stationarity (CIPS) test, to effectively assess the existence of unit roots in each series. This methodology guarantees a thorough and precise examination of the fundamental data features, effectively addressing the complexities inherent in panel datasets. Table 3 displays the outcomes of a unit root test. The findings of the CIPS test indicate that the series DE, lRTI, MTA, and TI are integrated of order one (I(1)), with their first differences exhibiting stationarity (I (0)) across all analyzed specifications. Furthermore, TII is designated as I (1) when a time trend is incorporated into the analysis. The results of the unit root test indicate a mixed order of integration, specifically I(0) and I(1). Therefore, the CS-ARDL model was employed in this study due to its suitability when some series are of order I(0), and others are of order I(1).

Table 4. CIPS unit root test

Variable	Deterministic	CIPS	10%	5%	1%	Results
DE	None	0.61	-1.57	-1.72	-1.98	Non-Stationary
	Constant	-2.36	-2.21	-2.33	-2.57	Stationary
	Constant & Trend	-2.74	-2.73	-2.86	-3.1	Stationary
D.DE	None	-3.81	-1.58	-1.72	-2.0	Stationary
D.DE	Constant	-3.82	-2.21	-2.34	-2.6	Stationary
D.DE	Constant & Trend	-4.22	-2.74	-2.88	-3.15	Stationary
TII	None	-2.12	-1.57	-1.72	-1.98	Stationary
TII	Constant	-2.73	-2.21	-2.33	-2.57	Stationary
TII	Constant & Trend	-3.04	-2.73	-2.86	-3.1	Stationary
lRTI	None	-1.03	-1.57	-1.72	-1.98	Non-Stationary
lRTI	Constant	-2.80	-2.21	-2.33	-2.57	Non-Stationary
lRTI	Constant & Trend	-2.16	-2.73	-2.86	-3.1	Non-Stationary
D.lRTI	None	-3.58	-1.58	-1.72	-2.0	Stationary
D.lRTI	Constant	-3.71	-2.21	-2.33	-2.6	Stationary
D.lRTI	Constant & Trend	-4.01	-2.74	-2.88	-3.15	Stationary
lMTA	None	-1.73	-1.57	-1.72	-1.98	Stationary
lMTA	Constant	-2.77	-2.21	-2.33	-2.57	Stationary
lMTA	Constant & Trend	-2.86	-2.73	-2.86	-3.1	Stationary
D.lMTA	None	-4.34	-1.58	-1.72	-2.0	Stationary
D.lMTA	Constant	-4.29	-2.21	-2.34	-2.6	Stationary
D.lMTA	Constant & Trend	-4.22	-2.74	-2.88	-3.15	Stationary
lTI	None	-0.34	-1.57	-1.72	-1.98	Non-Stationary
lTI	Constant	-0.68	-2.21	-2.33	-2.57	Non-Stationary
lTI	Constant & Trend	-1.88	-2.73	-2.86	-3.1	Non-Stationary
D.lTI	None	-2.48	-1.58	-1.72	-2.0	Stationary
D.lTI	Constant	-3.35	-2.21	-2.34	-2.6	Stationary
D.lTI	Constant & Trend	-3.44	-2.74	-2.88	-3.15	Stationary

Before applying the CS-ARDL model in the study the heterogeneity slope test was conducted. Table 5 presents the heterogeneity test of the data.

ISSN Online: 3007-3154
ISSN Print: 3007-3146

Vol. 4 No. 1 (January) (2026)

Table 5. Testing for slope heterogeneity

	Delta	P-values
	7.89	0.00
Adj.	9.34	0.00

Finally, the CS-ARDL model was estimated to achieve the objectives of this study. Table 5 displays the short- and long-run coefficients, along with the speed of adjustment for each. In the short term, analysis employing the Cross-Sectionally Augmented ARDL (CS-ARDL) model indicates that technical infrastructure (TII) has a significant impact. Specifically, a 1% increase in TII results in an approximate 0.83% increase in the corresponding outcome.
This is a clear reminder that having strong infrastructure is crucial for getting quick results. Conversely, the coefficients for return on telecom investment (LRTI) (0.10), technical innovation (LTI) (0.05), and modern technology access (LMTA) (0.02) are statistically insignificant in the short run. The study finds a negative error-correction term (ECT) of approximately -0.54. It suggests that if any deviations from the long-term equilibrium occur, we could expect approximately 54% of that discrepancy to be resolved in the subsequent decade. In the long run results, we perceive that all four variables provide interesting information. TII continues to positively impact outcomes with a coefficient of 0.36. This indicates its lasting importance. Return on telecom investment (RTI) also plays a crucial role, showing a strong positive effect with a coefficient of 2.75. This strengthens the idea that investing in telecommunications pays off in the long run. Meanwhile, technological innovation (TI) has a modest long-term effect, with a coefficient of 2.08. Interestingly the Modern Technology Access (MTA) coefficient is 1.86, indicating that substantial access to advanced digital tools, such as AI, 5G, cloud computing, and digital platforms, is an important long-term driver of the expansion of the digital economy. In summary, our CS-ARDL analysis indicates that strong technical infrastructure is vital in the short term, while both telecom investment and technological innovation have lasting positive effects.

Table 6 CS-ARDL Results

Variables	Coef.	Std.Err.	P-values	P>z
Short Run Estimates				
TII	0.83	0.21	3.95	0.00
RTI	0.10	0.16	0.66	0.51
TI	0.05	0.13	0.38	0.70
MTA	0.02	0.05	0.40	0.91
ECT	-0.54	0.11	-5.06	0.00
Long Run Estimates				
TII	0.36	0.14	2.57	0.00
RTI	2.75	0.34	8.09	0.00
TI	2.08	0.31	6.71	0.00
MTA	1.86	0.91	2.04	0.00

Conclusion and Recommendations This study analyzed the impact of Technical Infrastructure on the Digital Economy in developed Asian nations from 2001 to 2022. The independent variables in the study include technical infrastructure (TII), return on telecom investment (RTI), technological innovation (TIN), and modern technology access (MTA). In the short run, technological infrastructure has a large and positive effect on the Digital Economy. This means that strong infrastructure is necessary for quick results. For example, a 1% increase in TII is associated with a 0.83% increase in results. Return on telecom investment (RTI), technical innovation (TI), and access to modern technology (MTA) are three other factors that also have short-term benefits. It was found that the error correction term (ECT) was approximately -0.54. So, we can expect about 54% of the difference to decline in the near future, as long as the long-term balance doesn't change. The CS-ARDL analysis of the study shows that a strong technical infrastructure is very important in the short term.

Finally, this study offers suggestions for future policies to help the digital economy grow in both developed Asian countries and around the world. Policymakers in wealthy Asian countries should focus on building a strong technical infrastructure first. This will lead to significant short-term growth in the digital economy. To ensure growth continues, governments should adopt policies that encourage long-term investment in telecommunications and new technologies. Public-private partnerships are an example of strategic incentives that can bring investment to these areas. Improving rules and oversight systems will help the rapid growth of digital technology last while still meeting long-term economic goals.

This study has two key limitations. First, the analysis is restricted to a selected group of developed Asian countries, as several other developed economies in the region were excluded due to the unavailability of reliable data on the digital economy, a key variable in the study. As a result, the findings may not fully represent all developed Asian economies. Second, the sample period is limited to 2001–2022 because data for the main variables were not available beyond 2022. Consequently, the study does not capture more recent developments in digital infrastructure and digital economy dynamics that may have emerged after this period.

References

Chudik, A., & Pesaran, M. H. (2015). Common correlated effects estimation of heterogeneous dynamic panel data models with weakly exogenous regressors. Journal of Econometrics, 188(2), 393–420

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340.

ITU. (2015). Measuring the information society report: 2015. International Telecommunication Union, Geneva. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2015/MIS2015.

Paelo,A., & Robb, G. (2020). Comparative approaches to key issues in the economic regulation of telecommunications markets in South Africa, Tanzania, Zambia, and Zimbabwe (No. 2020/84).

Yonazi, E., Kelly, T., Halewood, N., & Blackman, C. (2012). The transformational use of information and communication technologies in Africa: Main report.

Dahlman, C., Mealy, S., & Wermelinger, M. (2016). Harnessing the digital economy for developing countries.

Gkouskos, G. D. (2025). The impact of the digital economy on the added value per economic activity in OECD countries: the role of entrepreneurship.

Thomas, L. D., Leiponen, A., & Koutroumpis, P. (2020). Markets for data. Industrial and Corporate Change, 2020, Vol. 29, No. 3.

Briglauer, W., Cambini, C., Gugler, K., & Sabatino, L. (2025). Economic benefits of new broadband network coverage and service adoption: evidence from OECD member states. Industrial and Corporate Change, dtae043.

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 4 No. 1 (January) (2026)
Sefrina, M. (2024). An Inclusive Digital Economy in the ASEAN Region. Economic Research Institute for ASEAN and East Asia.

Hilko, M. (2021). Disrupting copyright: How disruptive innovations and social norms are challenging

IP law. Routledge.

Koutroumpis, P. (2019). Economic benefits of new broadband network coverage and service adoption: Evidence from OECD member states. Industrial and Corporate Change. OUP Academic

Bakare, A. (2024). Public–private partnerships and digital infrastructure investment in Africa. Journal of Telecommunications Policy and Development, 48(2), 113–129.

Kuek, S. C., Paradi-Guilford, C., Fayomi, T., Imaizumi, S., Ipeirotis, P., Pina, P., & Singh, M. (2015).The global opportunity in online outsourcing. World Bank.

Röller, L. H., & Waverman, L. (2001). Telecommunications infrastructure and economic development: A simultaneous approach. American economic review, 91(4), 909-923.

Madden, G., & Savage, S. (2018). Telecommunication infrastructure and economic growth. (reviewed in sustainability journal). Wisdom Library.

Turner, J. L., & Waverman, L. (2001). Economic impacts of telecommunications infrastructure. Telecommunications Policy, 25(10–11), 709–732.

Spiezia, V. (2011). Are ICT users more innovative? An analysis of ICT-enabled innovation in OECD firms. OECD Journal. Economic Studies, 2011(1), 99.

Sysoyeva, L., & Usarralde, M. J. M. (2025). From security to digital governance in OECD: evolution and some current considerations since the digital transformation. Salud, Ciencia y Tecnología-Serie de Conferencias, (4), 1401.

Sarangi, A. K., & Pradhan, R. P. (2020). ICT infrastructure and economic growth: A critical assessment and some policy implications. Decision, 47(4), 363-383.

Verma, A., Dandgawhal, P. S., & Giri, A. K. (2023). Impact of ICT diffusion and financial development on economic growth in developing countries. Journal of Economics, Finance and Administrative Science, 28(55), 27-43.

Rasheed, N., Khan, D., & Khan, A. (2025a). Impact of Demographic and Psychological Variables on Sustainable Consumption Behavior in Khyber Pakhtunkhwa. development, 3(10).

Rasheed, N., Khan, D., & Khan, A. (2025b). Socio-Economic Drivers of Sustainable Consumption Behaviour in Rural and Urban Areas: A Partial Least Squares Multi-Group Analysis. Journal of Asian Development Studies, 14(3), 323-340.

Rafique, N., Khan, D., & Rasheed, N. (2024). Exploring the Effect of Technological Diffusion on Energy Transition: A Path to Low Carbon Economy and Sustainability. Journal of Asian Development Studies, 13(4), 977-991.