Influence of Electronic Readiness on Economic Growth Based on Country Income Levels

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Abstract

Information and Communications Technology (ICT) readiness and societal changes have transformed and moved the world economy towards modern economy rooted in ICT. Against this backdrop, the influence of e-readiness on the economy is increasingly presenting a challenge and sparking heightened debates. As a result, a number of studies have witnessed an increase of income but also a notable increase in the e-readiness level. However, some countries have paid more on e-commerce, e-network and e-government than others, which raises the question of why, a dilemma that this study set out to fill. To reduce this knowledge gap, the study aimed to investigate the influence of e-readiness on economic growth based on nationwide income levels. This study employed an exploratory research design of a sample of 129 countries purposively selected out of 189, with Smart PLS version 4.0 applied for data analysis. The study adds e-readiness as key to economic growth, hence its contribution to the existing body of knowledge. Moreover, the study provides useful implication to practitioners and policy makers on the use of ICT facilities to integrate each country into the global networked economy and to adopt holistic long-term strategies for ICT development and the design of a region's information infrastructure and its integration into the global infrastructure so as to bridge the "digital divide" and improve e-readiness in order to realize the potential of technology for sustainable economic growth.

Introduction

The inception of electronic readiness (e-readiness) as part of Information and Community Technology (ICT) in the late 20th century has proven to be welcome news for all the countries even though it was not universally been clearly understood. Thus far, e-readiness has remained a complex term. Its definition is a multi-layered subject with several political, sociology, human resource, legal, business, economy, government, marketing and banking as well as other dimensions (Harmawan, 2022). In essence, e-readiness can mean different things to different disciplines, different contexts, and for different purposes. Harmawan (2022) conceptualised e-readiness in the economy as the ability of a country to adopt, use, and benefit successfully from e-commerce, e-government, and e-network, which are some of the salient features of e-readiness. E-network, e-commerce and e-government entail utilising opportunities of ICT development in analysing the economic growth of countries (Portulans Institutes, 2020: Costa & Rodrigues, 2023). Since then, there has been a notable change in the production system, and business has changed due to the ability of ICT to create a proactive, accessible and inclusive production environment (Alaaraj & Ibrahim, 2014). This study takes another corner of analysing e-readiness at the global level compared to previous studies whose analyses were principally based on

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individual countries. The novelty of this study even though countries may differ in the level of influence, they are useful to study the relationship between e-readiness channels and economic growth because the important factors for e-readiness (e-commerce, e-network, and e-government) evaluation to economic growth have not yet been analysed systematically worldwide. Some controversy arises because countries with high confidence in ICT readiness do not represent the kind of ICT readiness channels useful in improving the economy in countries to reflect the balance between e-commerce, e-government and e-network readiness.

Usually, countries allocate large budgets for ICT development to provide ICT facilities to improve e-readiness in the economy (Abiodun, Alade, & Igbekoyi, 2012). Regardless of all the efforts made, many countries still face similar problems in cases where their economies remain non-maximised through ICT development as prerequisites for e-readiness adoption (Harmawan, 2022). In addition, the world has witnessed a rapid evolution of the World Wide Web that has allowed thousands of individuals globally to access, share, exchange, and publish information. Indeed, many countries have realised that the information at their disposal was not only important to them but also constituted a variable economic tool that can expedite the knowledge of the economy (National Academy of Sciences, 1999). This situation has led countries to become electronic-ready through ICT development while others have been unable to attain this feat (Avgerou, Hayes, & Rovere, 2016). In line with Harmawan (2022), e-readiness from a holistic point-of-view is mediated by ICT development, which moderates the level of e-readiness countrywide associated with national e-business and e-marketing activities, value for money in all areas of production while opening up new avenues for creating value by organising the use of natural, financial, and human resources in a better and more efficient way.

Some debates on whether e-readiness drives economic growth persist. Given that investments in production via mechanisation and automation of the manufacturing and agricultural sectors lead to economic development, some contend that it is challenging to relate the output of e-readiness in the service industry to that growth (Carayannis, Ferreira, Jayantilal, & Rego, 2021). World reputable organisations such as González & Jouanjean (2017) argue that e-readiness is substantial in today's business economy, and provides structural changes in economic production and services by offering diverse and customised products to consumers in addition to improving product quality, and selling goods and services as well as facilitating e-business, e-government, financial sectors and inter- connectivity countrywide that cut the time for exchanging information. Currently developed countries are leading in being e-ready followed by the least developed countries and witnessing an increase in income and in countrywide e-readiness level. This study seeks to expand on the examination of e-readiness in the world growing economy. The world economy is growing at different levels of e-readiness. After all, the growing reliance on e-readiness in countries is contributing to economic and societal changes in addressing digital divides in existing economic inequalities. Economic growth refers to an increase in the production of economic goods and services in a given period relative to a previous period measured in the change of Gross domestic product (GDP), In this regard, macroeconomics still ponders over whether the patterns of e-readiness are compatible with the global expansion of the economy which is very counterintuitive (O'Neill, 2023).

Problem Statement

Generally, there are still large discrepancies between countries' average per capita income and ICT readiness. In this case, the impact of ICT readiness is not as clear-cut (Carayannis et al., 2021) argue. In fact, the realisation of the economic benefit of e-readiness is not yet entirely clear. Some studies by (Guo & Li, 2022) assume that employee productivity decreases rather than increases as a result of investment in ICT and, therefore, have a negative impact on the economy. Others still believe that ICT readiness can influence a country's economy. For instance, Charles and Nicholas (2022) contended that the significant impact of ICT readiness on economic growth is found in industrialised countries and not in developing countries, contrary to Odhiambo and Saba (2023) where ICT readiness is not only associated with productivity gains but also with economic growth. Roztocki, Soja and Weistroffer (2019) treat production factors in information systems today in the same category as land, labour and capital. These studies produced mixed results and, thus, without adducing any clear evidence on the influence of e-readiness on economic growth across the country let alone provide any evidence of a mediating effect to attenuate predictor and outcome variables.

The study proffers that failure to address e-readiness in a country can disrupt the healthcare, education, business, and economy; additionally, the resultant higher transaction costs, increased corruption, and higher costs for traditional factors of production, would reflect poorly on the performance of the respective economies and create inequality globally. Indubitably, the shift from manual to electronic working techniques presents challenges in many nations due to the recent emergence of e-readiness, which puts workers' positions at risk and makes them dread losing their employment and authority (Brunker, Mirbabaie, & Mollmann, 2022). The study also accords state actors an opportunity to develop strategies for implementing ICT facilities for countries to remain competitive in the rapidly changing global economy by developing a deep understanding of e-readiness domains in digital trade, identifying biases and gaps in addressing e-readiness, challenges and mitigation measures. Therefore, the current study examined the influence of electronic readiness on economic growth based on nationwide income levels specifically focusing on e-network, e-commerce, and e-government readiness influence on economic growth in addition to attempting to show how ICT developments moderate the effect of e-network, e-commerce, e-government readiness on economic growth**.**

Theoretical Background and Literature Review

The rapid growth of e-readiness in countries and the further development of the ICT industry have become a significant force in a country's economic recovery (Kang, 2020). The decision for or against the use of technology depends on the assessment of whether the technology contributes to the increase of e-readiness levels in countries (Fue et al., 2018). In this regard, the study is informed by the theories that specifically address the development of ICT in expediting e-readiness domain (e-network, e-commerce and e-government) to determine whether the relationship expressed in the predictors can also be applied to the outcome variables. Several theories reflect the problems of technology in many disciplines, but few of them provide a complete understanding of technology affecting economic growth worldwide. The study was guided by Diffusion of Innovations Theory (DOI) by Rogers, and Technological, Organisation and Environmental (TOE) theory by Baker. The rationality behind DOI is relative advantage, compatibility, complexity, trialability, observability, and time as factors that influence the adoption of e-readiness and the influence on the outcome variable. The TOE theory is about use

of technological, organisational and environmental as factors that influence the adoption of e-readiness and the influence on economic growth. The paper adopts the DOI and TOE theories as the logical foundation of this study, integrates DOI and TOE into the same systematic and holistic research framework, constructs a theoretical model of the impact of e-readiness as a digital innovation, and examines the influence on different channels (e-commerce, e-government, and e-network).

Empirical Studies

Numerous studies have been conducted in developed and developing countries on the effect of either e-readiness or e-readiness domains on economic growth and other related studies. Limited studies have been conducted countrywide. The paper under study might be an exception. Ilgaz and Gulbanar (2020) found a positive relationship between e-readiness and competence online learning. Similarly, Kang (2020) found a positive relationship between the National Gross Domestic Product and e-readiness. Moreover, Ifinedo and Usoro (2020) using data from the World Bank and Hofstede's work, found a positive correlation between economic indicators and network readiness. Furthermore, Mohmoud and Zahra (2015), who evaluated e-readiness in the community through the application of e-commerce, found such a positive relationship. In similar vein, Amal and Hayat (2023) analysed the effect of perceived organisational e-readiness factors and perceived external e-readiness factors on the adoption of e-procurement. Using the discriminant function, the study concluded that internal and external factors are influencing factors on the institution's adoption of e-procurement (Amal & Hayat, (2023).

Another study on the role of e-commerce readiness in economic development concluded that e-commerce influences economic variables and the growth rate positively (Cordes & Marinova, 2023). In another study, Dudung et al. (2022) determine the effect of e-readiness on the achievement of graduate students. Using a sample of 210 doctoral students in Jakarta, Indonesia, the study had used structural equation modelling (SEM) using Smart PLS 3.3.3 software, with the results establishing an effect of e-readiness on graduate achievement (Dudung, Hasanah, Priyanto, & Ramadhan, 2022). Moreover, Albiman and Sulong (2022) proposed that there may be non-linear links between ICT development and economic growth in Sub-Saharan Africa. Using data from 27 countries covering the 1990-2014 period, the study established that only Internet development had a positive effect across all income groups, with the impact of other ICT development indicators yielding mixed results depending on the level of economy (Albiman & Sulong, 2022). Furthermore, Appiah and Issac's (2021) study that had examined the relationship between ICT development and economic growth by employing a panel of 123 countries comprising 45 high-income, 58 middle-income, and 20 low-income countries constructed an ICT development index from mobile, internet, and fixed broadband and found that ICT development enhanced economic growth in (Appiah & Isaac, 2021). Even though many studies argue for a link between e-readiness domains including ICT development to economic growth, global analytical evidence has been lacking.

Conceptual Framework and Hypotheses

Figure 1 illustrates the conceptual framework of this study based on the literature review. The study argues that e-readiness positively influences economic indicators and, thus, economic growth. Likewise, reports have demonstrated that ICT development is a good moderator for e-readiness innovation and diffusion (Rogers, 1983). One of the measures of e-readiness comprise

the e-network, e-commerce, and e-government index, which are essential in truly gauging a country's e-readiness for development, which also serve as indicators of the economic wealth, which help to leverage technological innovation.

Figure 1, captures the concept of e-readiness with number of outcome variables and brings together several related concepts to explain and give a broad understanding of the phenomena under this study in line with what several scholars have explained and clarified. Specifically, the conceptual framework represents the organisation of the central idea and central concept of e-network, e-commerce, e-government, and ICT development from DOI and TOE.
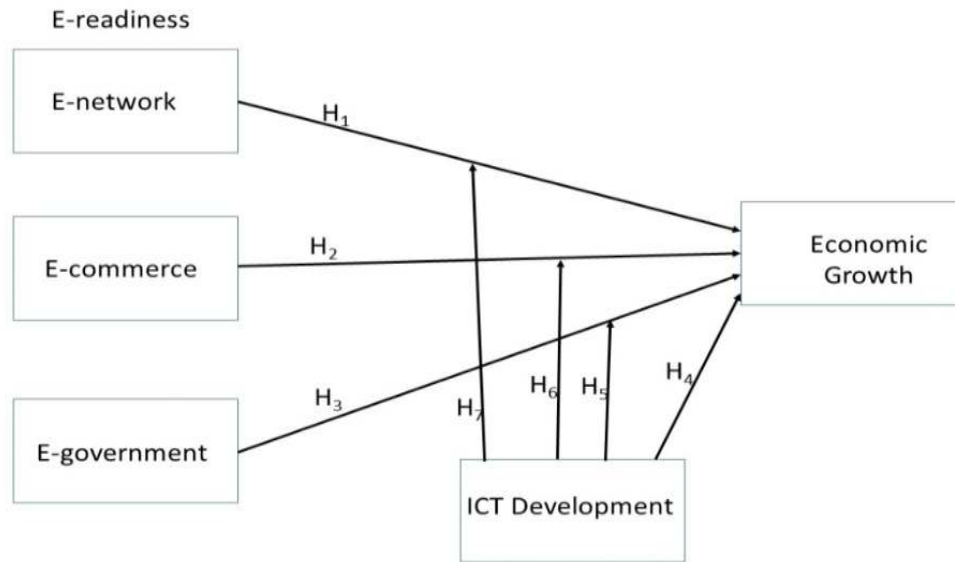
Source: Model developed by Researchers (2024)
Figure 1: Conceptual Framework

Development of Hypothesis
The diffusion of innovation theory gives rise to e-network readiness; the utilisation of ICT depends on how countries adopt technology around the world. In other words, the science of the economy requires optimal utilisation of scarce resources, with e-networks trying to resolve the issue of the economy through ICT in a bid to enhance effective interaction in economies and social exchange of society (Hoshmand, Salehnia, & Zabihi, 2020). It is therefore Hypotheses that:

H_1:   E-network readiness influences economic growth in countries

The continued diffusion of e-commerce globally is increasingly becoming a substantial factor in fostering economic growth by making a significant contribution to the global economy and providing consumers with greater choice and low prices (Feng, 2022). In fact, e-commerce is much lower in low-income countries but much higher in high-income countries. Therefore, the diffusion-innovation theory and TOE are important in explaining e-commerce and associated factors that accelerate or inhibit its adoption and, consequently, what leads to either slow growth or no growth at all. In this regard, Fredriksson (2021) argued that 53 percent of the population in high-income countries adopted e-commerce, 16 percent did so in upper-middle-income nations adopted e-commerce, but only five percent and three percent in lower-middle and lower countries

adopted e-commerce, respectively. Though these results suggest a correlation between income and e-commerce in countries, there is no scientific evidence to prove so. Nevertheless, lack of ICT awareness as the diffusion-innovation theory illustrates constitutes a critical barrier to the e-commerce uptake and, consequently, slows down or impairs growth of the economy. It is therefore Hypotheses that:

H_2: *E-commerce readiness influences economic growth in countries*

The adoption of e-government in the context of economic growth and whether e-government is economically beneficial depends on the ability of countries to adopt innovations based on TOE (Choi at el.,2022). E-government uses ICT to promote economic change in countries as e-government provides services, information, and knowledge to all government apparatuses, government customers, citizens, businesses, public employees, and other government actors as all are involved in integrating ICT innovations such as the Internet and modern devices to improve service delivery and promote political democracy (Hasin, Kumar, Kumar, & Shareef, 2009). From this assertion, the study can predict that failure of ICT adoption can lead to either slow or no stunted economic growth. Implicitly, it is hypotheses that:

H_3: *E-government readiness influences economic growth in countries*

The development of ICT enabled most of the countries in the world to be e-ready for the application of information technology. ICT development constitute capital in enhancing economic growth. Higher level of ICT development allows a typical economy to achieve a higher growth rate for given levels of growth in labour and capital inputs (Ngepah, Odhiambo, & Saba, 2023). The rate of diffusion of ICT readiness depends on DOI and TOE. It is therefore Hypotheses that:

H_4: *ICT development influences economic growth in countries*

The moderating effect refers to the transmission of the effect of an independent variable on a dependent variable through one or more other variables (Boudi & Ghezali, 2021). Digital readiness has the potential of being significant to economic growth only in high-income countries and a significant negative contribution to middle and low-income nations (Anggraeni, Juanda, & Yugo, 2021). In this context, there are ups and downs in the global economy, with the data published by the World Economic Outlook (WEO) showing that the global economy grew at six percent in 2021 compared to only 4.9 percent in 2022 (WEO, 2022), implying a slight drop. In addition, there were also economic country-by-country variations. These variations might stem from different dimensions of readiness caused by DOI and TOE. Impliedly, e-readiness does not always show a significant effect on economic growth and its effect is not always automatic, let alone guaranteed, unless moderators intervene between variables**.** Implicitly, Hypotheses that ICT development moderate the influences of e-readiness (e-network, e- commerce and e-government) on economic growth.

H_5: *ICT Development moderates the influence of e-readiness (e-network, e-commerce and e-government) on economic growth*

Research Methodology
Based on the study's overarching philosophies, which include the fact that e-readiness influences economic growth), it has for consensus among academics over the best ways to conceptualise and address a given issue. In this regard, the positivity approach helped to establish a cause-effect relationship between the phenomena in addition to facilitating the in-depth investigation of the research question. The study applied the quantitative approach and specifically, the exploratory research design to establish the relationship between predictor and response variables and get a composite picture of the topic under study as suggested by (Evtimov & Maksimovic,2023). Secondary data for 2022 of e-readiness channels (e-network, e-commerce and e-government) and GDP per capita of 129 countries were the basis of the analysis. The 129 countries were purposively sampled out of 189 nations representing the whole world, working on assumption that the sample comes from normal population with a significance value assumed to be 1%. The data came from Portulans Institute, United Nations Conference Trade and Development (UNCTAD) and the World Bank (WB), which recognised for measuring the level of e-readiness and GDP, respectively. With recourse to the 2022 secondary data, the current study then conducted statistical analysis using PLS-SEM to test and evaluate the multiple causal relationships between e-readiness and the dependent variable (GDP). Specifically, the study used Smart-PLS version 4.0 to analyse the data. This was done much in line with Hair *et al.* (2012), who suggested that the sample size in a structural equation model is determined by the significance level, the statistical power, the minimum coefficient of determination (R^2 values) used in the model, and the maximum number of arrows pointing to a latent variable. In practice, a study would have a significance level of one percent or five percent and R-square values of at least 0.25. Using these parameters, the sample of 129 proposed by Marcoulides and Saunders (2006) was deemed suitable for the study because the minimum required sample size for quantitative research ranges from 100 to 200.

Analysis and Interpretation of Findings
The objective of the study was to determine the influence of e-readiness on economic growth. The data were collected for both measures (e-readiness and economic growth). To make the proposition, 129 countries out of 189 across all continents were sampled since they all had databases of electronic readiness and economic growth (GDP per capita) in each country. The study utilised the latest secondary data for 2022 available in international reports published by well-established United Nations organisations for both the e-government and e-commerce readiness—the Portulans Institute in collaboration with the World Economic Forum for e-network readiness, the International Telecommunication Union for ICT Development Index and the World Bank for GDP per capita. In addition, understanding countries' incomes was important when drawing samples to provide the importance of ICT diffusion in countries, which revealed that countries average income levels per capita ranged from $238.40 to $126,426.10 GDP (WB, 2022). The marginal range of e-network readiness was 21.85 to 86.06 (Portulans Institute, 2022), for e-commerce marginal ranges from 8.3 to 94.5 (UNCTAD, 2022), e-government marginal range lies from 15.57 to 97.58 (UNCTAD, 2022) and ICT development ranges from 1.01 to 8.45 (ITU, 2021). The findings were revealed basing on indicators as on Table 1.

Table 1: The conceptual framework and its indicators

S/no	Latent Variables	indicators variables	Measurements
1	eNR	ENR1	Technology readiness indices
		ENR2	People readiness indices
		ENR3	Governance Readiness Indices
		ENR4	Impact Readiness indices
2	eCR	EC1	Share of individuals using Internet indices
		EC2	Share of an individual with an account Indices
		EC3	Secure Internet servers Indices
		EC4	UPU Postal Reliability Indices
3	eGR	EG1	e-Participation Indices
		EG2	Online Service Indices
		EG3	Human capital Indices
		EG4	Telecommunication Infrastructure Indices
4	IDI	IDI	ICT Development Indices
5	Economic Growth	GDP	Gross Domestic Product Per capita

Source: Portulans Institute, ITU, UNCTAD, UN-DESA &WB (2022

Quality of Data
Furthermore, the study considered issues of validity and reliability. International data were used from United Nations organisations for e-readiness and GDP per capita. These organisations have set indices for measuring what is intended to be measured. They also have set levels of e-readiness aspects and levels of the economy for each country. With controls and rigour in place, the study concluded that the sources used for the quantitative analysis were reliable, factual, correct, and not imaginary, hence suitable justifiable for application in this research.

Explanation of target endogenous variable variance
Based on Table 2, R-Square was 0.772, indicating that a 77.2% change in economic growth can be explained by predictor variables. The adjusted R squared of 0.759 indicates that the model predicts values in the target field, and thus additional inputs on e-readiness variables do not add value to the model. In other words, excessive variables were penalised for providing a more accurate measure of the model's goodness-of-fit in the multiple predictors (Chouhan, Keer and Lohiya,2023).

Table 2: Quality criteria for countrywide analysis

	R-square	R-square adjusted
Economic Growth	0.772	0.759

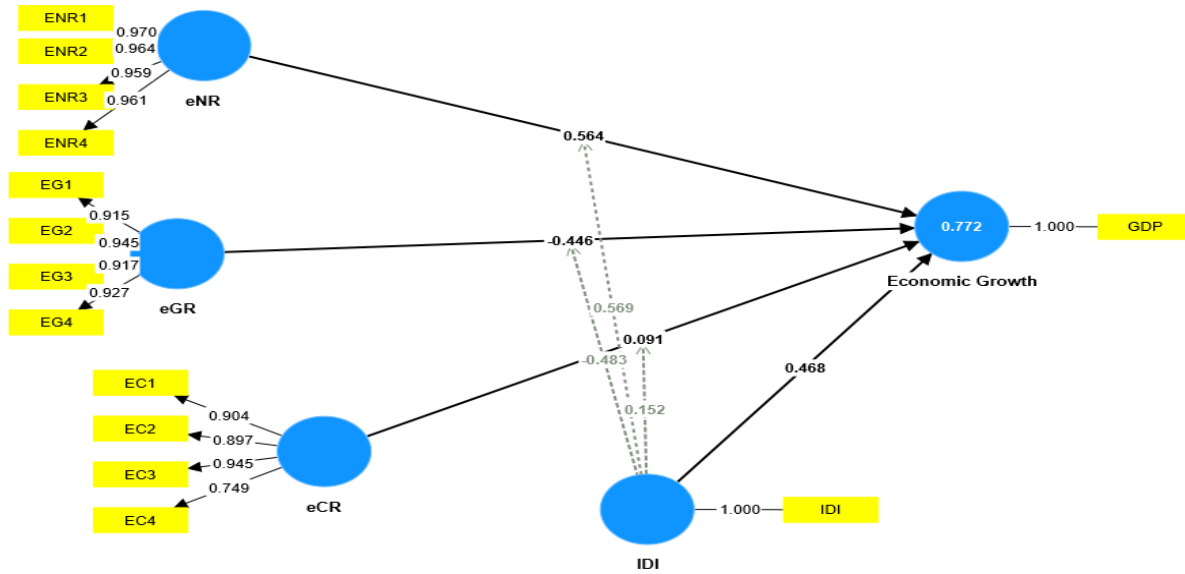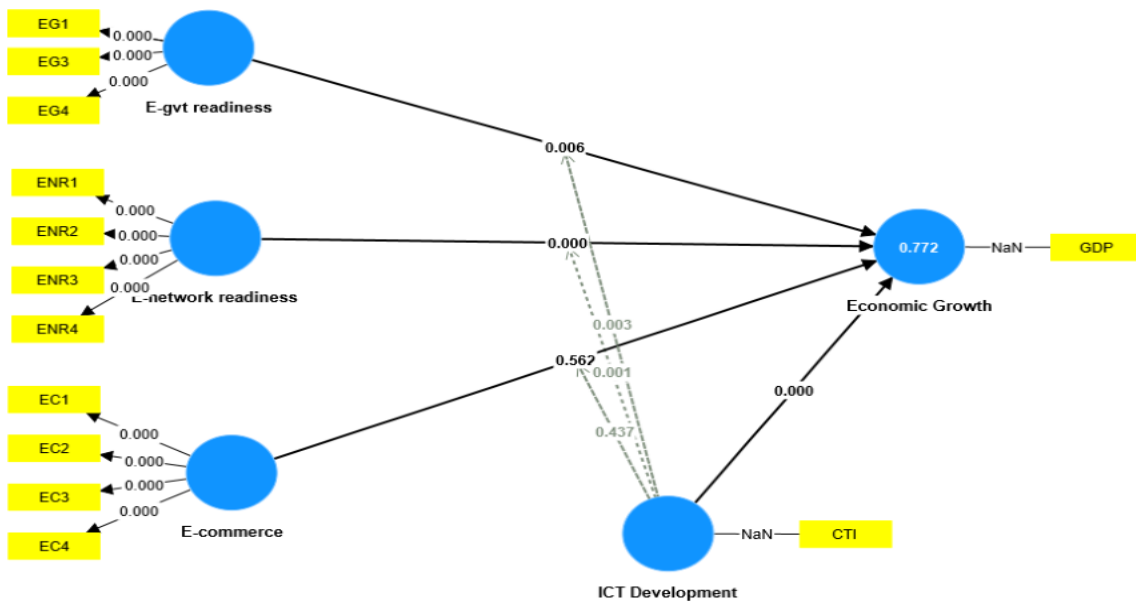Source: The SmartPLS results of the research model (2024)

Figure 2: PLS-SEM Results of all countries

Source: The SmartPLS results of the research model (2024)
Figure 3: Bootstrapping Results in all countries across continents

Inner Model Path Coefficient Sizes and Significance
Based on Table 3 and Figure 3, show that the coefficients indicate an increase in the value of the dependent variable GDP for each unit increment in the predictor variable except for e-government readiness decreases. The inner model suggests that electronic network readiness (eNR) has a positive stronger effect on economic growth (0.564) followed by ICT development Index (IDI) (0.468), electronic commerce readiness (eCR) (0.091), and electronic government readiness (eGR) (-0.446). Moreover, the IDI moderated the influence of eNR on economic growth by 0.569, eCR by 0.152, and negatively moderated the influence of e-government on economic growth by -0.483. The hypothesised path relationship among eNR, IDI, and eGR on economic growth was

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statistically significant except for the eCR on economic growth, which was not statistically significant because its standardised path coefficient was 0.091, which is lower than the accepted value of 0.1. Moreover, the hypothesised path of moderator between predictor variables and economic growth was statistically significant. Thus, the study concludes that eNR and IDI are positive predictors of economic growth whereas the eGR is a negative predictor of such growth and does not directly predict economic growth. Furthermore, the IDI positively moderated the influence of eNR and eCR on economic growth except for eGR negatively moderated on economic growth. To check for structural path significance, we established the path coefficients. The result show T-values of 2.755, 4.635, 5.454, 2.924, and 3.463 for eGR, eNR, IDI, IDI x eGR, and IDI x eNR, respectively, and were statistically significant. All other path coefficients in the inner model were not statistically significant.

Table 3: Path coefficients bootstrapping, total effect, and significance for the countrywide analysis

	Economic Growth	Sample mean	Standard deviation	T-statistics	P-values
eCR	0.091	0.097	0.157	0.58	0.562
eGR	-0.446	-0.439	0.162	2.755	0.006
eNR	0.564	0.553	0.122	4.635	0.001
IDI	0.468	0.471	0.086	5.454	0.001
IDI x eGR	-0.483	-0.491	0.165	2.924	0.003
IDI x eNR	0.569	0.558	0.164	3.463	0.001
IDI x eCRI	0.152	0.175	0.196	0.778	0.43

Source: The SmartPLS results of the research model (2024)

Construct reliability and validity
We also established the reliability and validity of the latent variables to complete the examination of the structural model. Table 4 resents the various reliability and validity values larger than 0.6, thus indicating high levels of internal consistency and reliability among all the three reflective latent variables. In addition, all the average variance extracted (AVE) values were greater than the acceptable of 0.5, hence confirming convergent validity.

Table 4: Construct reliability and validity for countrywide analysis

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_a)	Average variance extracted (AVE)
Ecr	0.898	0.921	0.930	0.769
eGR	0.945	0.950	0.960	0.858
Enr	0.974	0.977	0.981	0.928

Source: The SmartPLS results of the research model (2024)

Outer model loadings

Based on Table 5 and Figure 3the outer loadings were viewed as part of the path coefficients, the bivariate correlations between the latent variable and the indicators in its outer model. Since it was a reflective model, it was found that the outer loading was more than 0.7 at the p-value 0.001,

implying that the model was statistically significant, with estimated relationships in reflective measurement models (i.e., arrows from the latent variable to its indicators) showing absolute contribution to its assigned constructs.

Table 5: Outer model loading

	Outer loadings	p-values
IDI <- ICT Development	0.98	0.001
EC1 <- E-commerce	0.904	0.001
EC2 <- E-commerce	0.897	0.001
EC3 <- E-commerce	0.945	0.001
EC4 <- E-commerce	0.749	0.001
EG1 <- E-government readiness	0.915	0.001
EG2 <- E-government readiness	0.945	0.001
EG3 <- E-government readiness	0.917	0.001
EG4 <- E-government readiness	0.927	0.001
ENR1 <- E-network readiness	0.97	0.001
ENR2 <- E-network readiness	0.964	0.001
ENR3 <- E-network readiness	0.959	0.001
ENR4 <- E-network readiness	0.961	0.001
GDP <- Economic Growth	0.987	0.001
IDI x eGR -> ICT Development x E-government readiness	1.000	n/a
IDI x eNR -> ICT Development x E-network readiness	1.000	n/a
IDI x eCR -> ICT Development x E-commerce	1.000	n/a

Source: The SmartPLS results of the research model (2024)

Discriminant validity
Additionally, based on Table 6, we used the square root of AVE in each latent variable to establish discriminant validity. The values were larger than other correlation values among the latent variables, hence signalling that discriminant validity had been well-established.

Table 6: Fornell-Larcker criterion of for countrywide analysis

	eCR	eGR	eNR	Economic Growth	IDI
eCR	0.877				
eGR	0.912	0.926			
eNR	0.932	0.926	0.963		
GDP	0.715	0.646	0.78	1.000	
IDI	0.89	0.872	0.886	0.766	1.000

Source: The SmartPLS results of the research model (2024)

Discussion of Findings
The examination of the influence of e-readiness on economic growth reveals that the data were of significant quality for the study. The results show that 77.2% of R-square, which was substantial to explain the variations of the independent variables on outcome variable in line with Chouhan, Keer, and Lohiya (2023). The study results also indicate high levels of internal consistency and reliability among all the three reflective latent variables, as argued by Hulland (1999) and Bagozzi and Yi (1988). In addition, the study found that all the AVE values were within the acceptable value range, so convergent validity was confirmed. The outer loading was more than 0.7 at p-value 0.001, implying that the model was statistically significant, consistent with the estimated relationships in reflective measurement models as promulgated by Hair, Ringle, and Sarstedt (2018).

Findings Based on the Influence of e-Network Readiness on Economic Growth
The study confirms Hoshmand, Salehnia and Zabihi's (2020) argument that e-network readiness has a positive influence on economic growth at a significance level of 0.001. The equation shows that **$B_1=0.564$, (P<0.001)**. As such, there is sufficient evidence to support the hypothesis and reject the null hypothesis. Even though the claim under this study is that the relationship does not happen by chance, the sample provides evidence to conclude the effect does exist. Implicitly, e-network readiness plays a significant role in the current economic growth. Put differently, countries have already built up a mature stock in ICT infrastructure to enhance the investment in technology, built stable organisational structures for managing environment factors as claimed by Baker (2011). In addition, the results show that the notion of digital divide is currently receiving much attention and focus worldwide and that every country should be e-connected as required by the World Bank (2021). The results further show that the rapid diffusion of ICT and TOE across the country has encouraged the adoption of e-networks as a source of competitive advantage, which can also serve as equalising opportunities for successful competition between economies at different levels of development (Dandgawhal, Giri, & Verma, 2023). Consequently, we argue—based on the results—that the world has not escaped the issue of e-network, that information technology in general and the Internet in particular constitute an area of urgent and indisputable universal concern for all countries (Ayushi, Dharminder, & Dhaliwal, 2020).

Findings Based on the Influence of e-Commerce Readiness on Economic Growth
The study further confirm that e-commerce readiness has a positive bearing on economic growth despite lacking statistical evidence (**$B_2= 0.091$, P>0.05).** Indeed, **the hypothesised path coefficient of 0.091 was not also statistical.** Therefore, the sample did not provide sufficient evidence to conclude that the relationship exists; as such, the null hypothesis cannot be rejected **contrary to** Feng (2022), who contends that e-commerce is becoming a substantial factor in economic growth by making a significant contribution to the global economy and providing consumers with greater choices at low prices. The effect might be attributable to the least developed countries receiving minimum attention in e-commerce, according to UNCTAD (2019). Even though the diffusion of innovation theory and TOE is vital in explicating and accounting for e-commerce, the study in line with Fredriksson (2021) found some factors such as internet security, legal and regulatory barriers coupled with limited use of internet banking to inhibit the effective and efficient adoption of e-commerce, consequently could either slow down or stunt the growth.

Findings Based on the Influence of e-Government Readiness on Economic Growth
Conversely, the study also confirms that e-government readiness has a negative effect on economic growth with statistical evidence (**B_3= -0.446, P<0.01**). In this regard, e-government can harm the economy. In other words, the higher the eGR, the lower the economy. This outcome provides sufficient evidence to support the hypothesis, hence the rejection of the null hypothesis. Implicitly, the underlying causative relationship does exist between two variables. The claim under this study is that the relationship does not happen by chance; however, the sample provides evidence to support such an effect. The study findings, in this regard, are consistent with Elias (2023) despite global endeavours aimed to encourage the proliferation of e-government applications towards improved overall public service delivery. This reality check signals that there are still some critical challenges on the usability to overcome. In addition, e-government in the context of economic growth depends on the ability of countries to adopt innovations based on TOE, as Choi et al.'s (2022) study has argued. Furthermore, e-government could influence the economy; nevertheless, as many studies have argued, the negative relationship found in the analysis is likely attributable to lack or weakness in ICT infrastructure that is hindering the appropriate sharing of information, opening up new channels of communication and delivery of new services (Ndou, 2004). Privacy and security are also critical issues in implementing e-government in both developed and developing countries because of excessive confidentiality (Layne & Lee, 2001). Other impediments include organisational barriers such as lack of top management support, and lack of qualified personnel and training. Also, resistance to change to electronic ways as a new phenomenon lacks acceptability, collaboration and cooperation between all the partners is a critical factor in the e-government implementation process. Furthermore, there are issues of digital divide, multiplicity of cultures, diverse education systems and income disparities that make e-government underutilised, as Alshehri and Drew (2010) have further contended. According to Ciborra (2005), political changes alongside technological implementation may also impede e-government development, as also similarly argued by Abuhussein, Kader, Kamal and Youssef (2023).

ICT Development Influences on Economic Growth in Countries
The study also confirm that ICT development has a positive influence on economic growth with statistical evidence (**B_4= 0.468, P<0.01**). In this regard, the higher the IDI, the higher the economy. Based on the results, there is sufficient evidence to support the hypothesis and reject the null hypothesis. Though this study presumes that the relationship does not happen by chance, the sample provides evidence to support the existence of such an effect. The study also concurs with Ngepah, Odhiambo and Saba's (2023) assertion that higher levels of ICT development allow a typical economy to achieve a higher growth rate for given levels of growth in labour and capital inputs. Similarly, the study is also congruent with Seitani and Westmore (2020), who found that many countries were making concerted efforts to promote ICT diffusion through the provision of online services and the application of new technologies, with demographic variables being a large player in explaining people's willingness to adopt new technologies.

ICT Development Level Moderates e-Network Readiness Fffect on Economic Growth in Countries
The study also confirms that the ICT development level positively moderates the influence of e-network on economic growth with statistical evidence (**B_5= 0.569, P<0.01**). Implicitly, the higher

the level of moderation (IDI), the higher the influence of e-network on economic growth. In fact, there is sufficient evidence to support the hypothesis and reject the null hypothesis. This study presumed that ICT development mitigates the influence of e-network readiness on economic growth. Evidentially, ICT still serves as a structural change enabler in the e-network. This outcome in congruent with Hasin, Kumar, Kumar and Shareef (2009) who have claimed that when the prospects of e-network growth in countries is extremely high, ICT development serves as a prerequisite to mitigating e-network on economic growth.

ICT Development Level Moderates the e-Commerce Readiness Influence on Economic Growth in Countries

The study further confirm that the ICT development level positively moderates the influence of e-commerce on economic growth but lacks statistical evidence (**B_6= 0.152, P>0.05).** In this connection, the higher the moderation level, the higher the influence between eCR and the economy, even though the sample did not provide sufficient evidence to firmly conclude the moderation between variables. As such, the null hypothesis cannot be rejected and, thus, the underlying causative relationship does not exist between the two variables but the relationship observed is due to chance alone. The lack of statistical evidence, in this regard, might be attributable to economic variations occasioned by different dimensions of DOI and TOE. Though the effect of e-commerce is not always automatic, the study conclude that ICT development does not always show a significant moderation of e-commerce on economic growth.

ICT Development Level Moderates the e-Government Readiness Influence on Economic Growth in Countries

Additionally, the study confirms that the ICT development level has statistically but negatively moderated the influence of e-government on economic growth (**B_7= -0.483, P>0.01).** This influence is even much more detrimental when mitigated by ICT development. In other words, the higher the level of moderation (IDI), the lower the economic growth. Therefore, the underlying causative relationship does exist between two variables because of the moderator between phenomena.

Conclusion, Implication and Recommendation

This paper was about the influence of e-readiness on economic growth, specifically the effect of e-network, e-commerce, e-government readiness on economic growth. In the study, ICT development played both the roles of predictor variable and moderating influence of other predictor variables on the outcome variable. The results indicate that e-readiness is the most important weapon in the fight against global poverty. Yet, concerted efforts to promote e-readiness in countries through DOI and TOE theories have not helped most of the countries in the world to achieve the desired competitive economic leadership position, according to the World Bank (2021). Technical barriers such as internet security, legal and regulatory barriers and limited use of internet banking are obstacles to e-readiness. Therefore, a country's economy could be influenced by e-readiness domains—e-network, e-commerce, e-government and other moderating factors—that have not yet to be considered in other works of literature. As such, adoption of e-readiness should be an inevitable and natural outcome under the present age and economic realities. This study provides empirical data evidence of the effect of e-readiness and ICT Development on economic growth. Indeed, e-readiness has a significant influence on economic growth, with the key to making e-readiness being the willingness to use blended

technology found in the ICT implementation strategies and useful training methods implemented by ICT experts to guide and maintain ICT progress.

The rapid diffusion of Information and Communication Technologies (ICTs) and Technology-Organisational-Environment (TOE) in economic relations can provide a competitive advantage by balancing opportunities for successful competition and creation of new sources of finance. Analysing the digital diffusion and TOE in countries is crucial for defining the level of diffusion of ICT and solving technology, organisational, and environmental issues. E-readiness is a new phenomenon in some countries, making the transition from manual to electronic working methods difficult and threatening workers' jobs and power. State actors, therefore, can develop strategies for implementing ICT facilities to remain competitive in the rapidly changing global economy. Also essential are understanding e-readiness domains in digital trade, identifying biases and gaps, and identifying challenges and mitigations. The study had further examined the contribution of practitioners to the use of ICT facilities, integrating each country into the global networked economy and adopting holistic long-term strategies for ICT development and the design of a region's information infrastructure. On the other hand, study limitations have included the sample size of 129 out of 189 countries, hence to the exclusion of other countries, whose input could be invaluable. Moreover, there an overriding need for a qualitative study to further analyse e-readiness and economic growth beyond the quantitative dimension and scope. Additionally, detailed longitudinal studies could be carried out to measure the impact of ICT on economic growth.

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