Law & Digital Technologies 2013-2024

ISSN 2079-8784

URL - http://ras.jes.su

№ 1 Том 1. 2021

Цифровые технологии для устойчивого развития: двойной вызов для устойчивого развития и перспективы инклюзивности

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Аннотация

Данная статья представляет собой обзорное исследование, в котором рассматривается соотношение цифровых технологий и устойчивого развития, а также правовые проблемы устойчивого развития. Цифровая технологическая инклюзия населения основывается на мобильных телефонах, которые в равной степени способствуют финансовой инклюзии и помогают в сокращении бедности. Цифровые технологии открывают широкие возможности для бизнеса и экономического роста. Кроме того, цифровые технологии успешно доказали свою актуальность. Цифровые технологии изменили способ достижения ЦУР и ускорили достижение ЦУР, особенно в условиях инклюзивности. Устойчивость и инклюзивность цифровых технологий должны стать задачей, которая должна быть решена с целью максимизации выгод от их применения для содействия устойчивому развитию. Рекомендуется, чтобы правительства на всех уровнях и учреждения несли ответственность за продвижение цифровых технологий и инфраструктуры, а также за предоставление большего количества основных услуг, которые будут стимулировать инвесторов в этой области. Правительства совместно с частными лицами должны оперативно принимать меры (например, сообщать о неисправностях) по обеспечению безопасности и поддержанию физических объектов, в то время как правоведы должны взять под свой контроль любые правовые проблемы, которые способствуют устранению таких проблем посредством закона.

Ключевые слова: цифровые технологии, устойчивое развитие, финансовая доступность

Дата публикации: 02.07.2021

Источник финансирования:

Special appreciation to Yulia Kharitonova, Professor, Doctor of Law, MSU, Moscow, whose invitation to make a presentation at the regular conference of Lomonosov Moscow State University birthed this paper. Thanks to Aleksandr Alekseenko, Associate Professor, PhD (Law), Vladivostok, with whose collaboration and contribution to a monograph entitled "Ensuring the Rights of Investors in the Context of the Digitalization of the Economy: The Experience of European and Asian States" and my section contribution, entitled "Delinquency tendency in digital currency and its impact on credit", got Prof. to learn of me. I am grateful to you both, so far. Sincere appreciation to the anonymous reviewers who did their work without any form of prejudice. Your suggestions and comments had further enhanced this paper. Many thanks to you.

Ссылка для цитирования:

Gidigbi M. Цифровые технологии для устойчивого развития: двойной вызов для устойчивого развития и перспективы инклюзивности // Law & Digital Technologies – 2021. – Том 1. – № 1 С. 27-36 [Электронный ресурс]. URL: https://ldt-journal.com/S123456780015729-2-1 (дата обращения: 20.04.2024). DOI: 10.18254/S123456780015729-2

1. Meaning of Digital Technologies (DT) and Sustainable Development (SD)

2 Digital technologies are ways of automation that are premised on electronic tools. The advent of digital revolution changed almost everything that could possibly be changed, up to the point that those that recognised its effect are afraid of free application of digital technology in some areas, for instance, there is a control of genetically modified seeds – in the area of agriculture. Digital technologies involve a lot of things, such as internet, website, digital television, a smartphone, a digital currency (such as cryptocurrency), blockchain tech, a digital human (robot) among so many other things. In short, digital technologies save time, costs, facilitate ease of doing things and have many possibilities that were hardly envisaged in the past centuries. Digital technologies have improved considerably all facets of human lives. Digital technologies have witnessed enormous progress since the adoption of the Tunis Agenda for the Information Society in 2005 (UNCTAD 2019). The progress was enormous indeed: the population using the internet surpassed half of the world population in 2018 (UNCTAD 2019). With some enablers, digital technologies have now been integrated into everything, without much ado, digital technologies have come to stay, and so far, they have become part of human’s day-to-day activities/engagements.

3 On the other hand, Sustainable Development implies economic prosperity for all. Also, it entails social inclusion, economic and environmental sustainability, and it all

gears towards human progress. It implies prosperity for the present generation without hampering the same for future generations. Sustainable Development is universal and holistic (Nakicenovic et al. 2019). This signifies the fact that all countries of the world are in the business of achieving the crystalized goals of the Sustainable Development as defined and itemised by the United Nations (UN) as a succeeded plan for Millennium Development Goals (MDGs). More so, the Sustainable Development is holistic because all the goals encapsulated in it are set to be achieved in unison. Sequel to this position, the SD goals as stipulated by the UN are more or less of making the government of a country be committed to the issue of governance because what any government might set to achieve as end goals under the political economy space are what makes up the SDGs.

4 Going by the lexicon meaning of sustainability it has four pillars, which includes a human in addition to the popularised three pillars. Proclaiming three pillars is justified by the fact that human is the recipient of the consequences of the actions towards the three pillars. Both forward and backward actions and their consequences revolve around the human. Therefore, it is three pillars with the human at the centre of the three-piece pillars. Figure 1 shows the three pillars of sustainability as expected in the instance of sustainable development. Furthermore, Figure 2 represents the interconnectivity of the three pillars of sustainability and prosperity to people, with governance being germane in administering the process (Nakicenovic et al., 2019). It can be inferred from Figure 2 as the three interconnected pillars are seated in the universality of ‘Governing’ and ‘Digitalization’ set that digitalization is important in achieving sustainable development.

5 On a quick note, it is rationally envisaged that digital technologies accelerate and promote sustainable development achievement, while sustainable development attainment promotes digital technologies. The two concepts have bidirectional causality when rationally is considered. Many studies, which had considered pre- and post-statistics of digital diffusion in national productivity, have given credence to the fact that the two concepts supplement each other (Baxtiyarjon and Jurayevich 2020; Sharma 2019).

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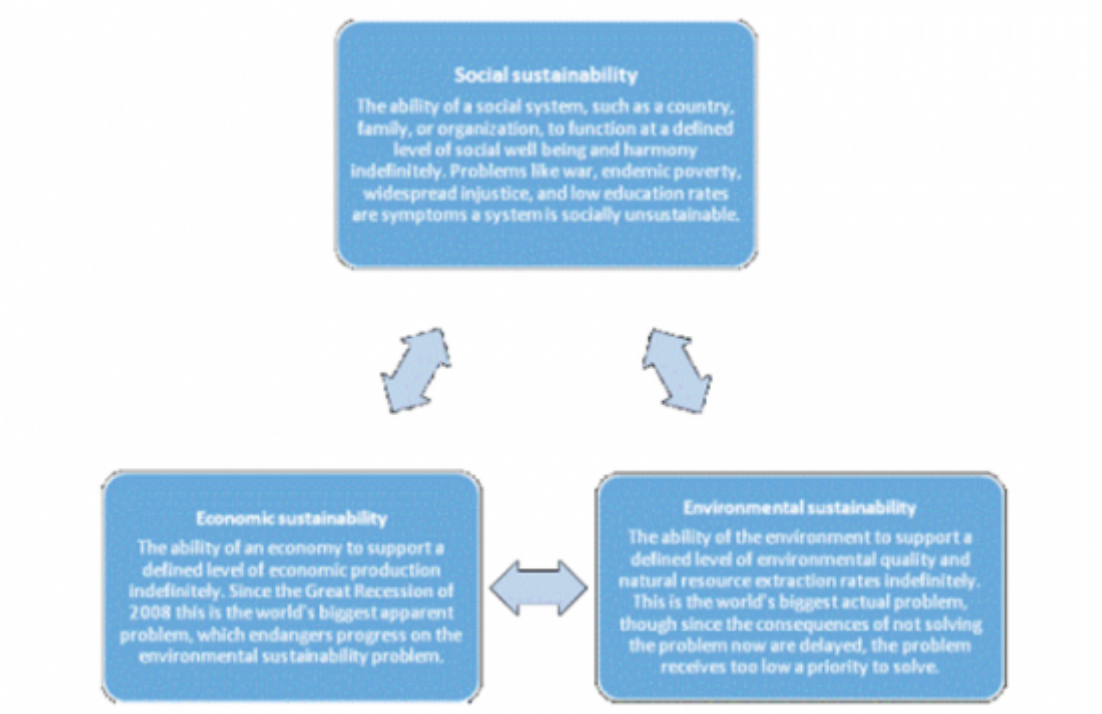

7 Figure 1: Three Pillars of Sustainable Development. Source: Lamprinaki Viktoria-Vasiliki (2015)

8

9 Figure 2: Interconnectivity of Sustainability Pillars with the Universality of Governing and Digitalisation. Source: Stone (2017) and Thwink (2014)

10 2. Paradigm Shift in Achieving Sustainable Development in the Face of Digital Technologies

11 Digital technologies have challenged and changed the know-how of handling our daily activities in achieving economic progress. The changes are observed in

education, health, agriculture, finance, business undertaking and governance. Now we are having ‘E’ prefix on almost everything we do. It is now E-banking, E-Commerce, E-Health, E-Agriculture, E-Education, E-Governance, just to mention a few. Our activities are now preceded by ‘E-’ prefix, which implies ‘Electronic’, that is, digital technology. Electronic forms are more preferable to the traditional form of activities, as they save time, costs, enhance profitability and productivity, and drive inclusion above all. The use of Artificial Intelligence (AI), Big data, Cloud computing, Machine learning and Algorithmic are relevant and significant tools in realising the Sustainable Development (UNCTAD 2019). Vividly, digital technologies have ways of expediting action towards the achievement of sustainable development.

12 Banks are now relying on digital technologies to facilitate their core businesses, such as customers’ assessment for loan or credit facilities. Now, the decision, whether a customer/client would get a loan or not, is taken in the twinkle of an eye, even in a developing country. Unlike before, some loan application would not go beyond uncompleted paperwork, which the applicant usually abandoned along the line. Likewise, in the field of medicine or a health sector generally, AI (robot) is now used in diagnosing patients and in carrying out surgeries, with gains in precision and fewer consumables (Nakicenovic et al. 2019). It was noted that 90% of prostrate surgeries in the USA are performed by the robot (Navaratnam et al. 2018). Also, the advent of 3D printing is another means through which digital technologies have raised hope in the health sector, as personalized prosthesis (such as artificial limbs, joints, and so on) could easily be produced at a very decreased cost (Noor et al. 2019) .

13 Digital technologies motivate structural change by causing reallocation of labour across the economic sectors (Meij et al. 2020). Worthy of note is the fact that employment creation through the adoption of digital technologies is far more than the structural unemployment that took place at its adoption (World Bank 2016). One might say that the structural change, witnessed as a result of digital technologies, is very profiting and productive in engaging more teeming population who are unemployed and underemployed. In a nutshell, the advert and adoption of digital technologies created more job spaces for people to venture into, especially, the teeming youth population who is very fast in adapting to the technologies. They usually take the advantage to showcase more creativities and innovations, which further expanded the frontiers of employment opportunities. Also, digital technologies are correlated with productivity and economic growth (Meij et al. 2020). A substantial positive relationship was established between broadband penetration and per capita income in 120 countries between 1986 and 2006 (Meij et al. 2020). Also, Strohmaier, Schuetz and Vannuccini (2019) investigated the relationship between digitalization (access and quality of broadband as indicators) and socioeconomics in Asian and Western countries between 2007 and 2016. They found digitalization having a positive impact on socio-economic performance, and this is true for all the countries considered in the study.

14 3. What Has Been the Stylised Challenges?

15 The new phase of digital technology or what is referred to as the third era of digital transformation comes with new challenges for government, businesses and individuals (Jovanović et al. 2018). More so, there is nothing good without its peculiar

challenge(s), so digital technologies have some challenges as well, which are very particular to the innovations. Challenges posed could be economic, structural or legal. Some of these are:

16 1. Identity stolen – some individuals indeed agreed with the possibility of their data been stolen, and a pseudo-individual existing based on the privileged information known about them (Daño et al. 2012; Nakicenovic et al. 2019). While that is feasible, it has deterred many people from embracing digital technologies in some areas of life where they perceived their suspicion could occur.

17 1. Monopoly – there has been a concern that a few businesses could dominate the market in a sphere of life, such as Google, Amazon, Facebook, WeChat and few others (Nakicenovic et al. 2019; UNCTAD 2019). Government has responded to this concern through a regulatory framework, just like the experience of Fintech regulation in China, where Ant Group nearly becomes the dominant player in its line of business.

18 1. Widening inequalities – there is a concern that a first and standard mover could mean winner takes all and probably concentrate profitability at one side, that is, increased first-mover profitability, such as Facebook and WeChat (UNCTAD 2019).

19 1. Legal certainty deals with the acquired status of e-communication, their possible recognition, enforceability and admissibility in executing legal acts (United Nations 2007). Legal security touches the use of digital signature and certification (United Nations 2007). Legal protection deals with concerns about the protection of intellectual property on online vicinity (United Nations 2007). Legal deterrence addresses regulatory framework in criminalising cybercrime activities in all its forms (United Nations 2007).

20 4. Prominent Factor in Charting SD

21 Regardless of the identified challenges against digital technologies, availability of smartphones and increased broadband penetration are prominent in positioning digital technologies for achieving sustainable development. Also, offering relational facilities or applications (commonly called Social Media), such as Facebook, Twitter, WeChat, Instagram, facilitates the acceleration of acceptance among the old and young populace in all the nations of the world. The proliferation of affordable smartphones is a breakthrough in driving digital technologies inclusion. In Figure 3, it was captured that 7 billion people among 7.4 billion global population of the world are within mobile coverage, out of which 5.2 billion have mobile phone (World Bank 2016). Total internet users as at then were 3.2 billion people out of 5.2 billion with mobile phones, and 1.1 billion people have high-speed internet (World Bank 2016). Mobile phone and internet could be referred to as a major enabler in actualising digital technologies for Sustainable Development Goals.

22 Considering the number of people with mobile coverage, there is a need to work towards making internet service available, accessible and affordable because of its relevancy in promoting actualisation of SDGs. High-speed Internet (broadband) as noted in Figure 3 “includes the total number of fixed-line broadband subscriptions (such as DSL, cable modems, fibre optics), and the total number of 4G/LTE mobile subscriptions, minus a correcting factor to allow those who have both types of access” (Nakicenovic et al. 2019). Adoption of digital technologies is becoming compelling. As young population has embraced digital technologies, industries are deploying smart devices as a solution in lowering their costs and expanding their profitability (Mehra 2017).

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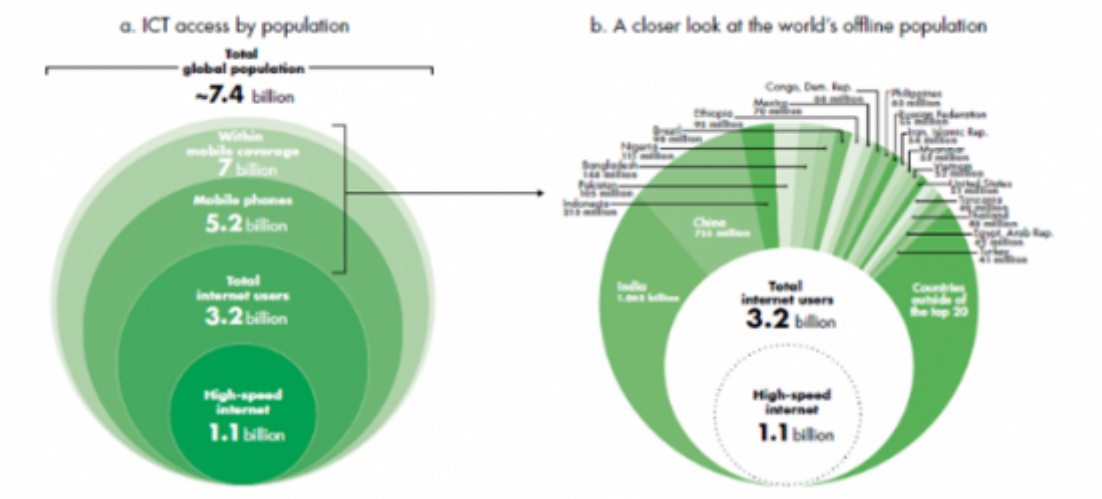

24 Figure 3: Internet Access by Population. Source: World Bank (2016).

25 ## 5. Poverty Phenomenon and SD

26 The interlinked 17 Sustainable Development Goals (SDGs), put forward by the United Nations General Assembly in 2015 as a roadmap for attaining a better and sustainable future for all, capture poverty eradication (Goal 1-No Poverty) as its first core agenda. Poverty is any form of deprivation of life essentials, ranging from access to health, education, income, civil participation in the political process and access to live well. Poverty transcends beyond the popular notion that it is an economic issue, and includes social exclusion and social capital (Meij et al. 2020). Poverty is caused by so many intertwined factors and considered to be relative rather than absolute, especially, in a heterogeneous setting (Townsend 2014). The majority of the poor people of the world are in developing countries, Asia and Africa (2As poverty space), with India (17.3% of the global population) as the poverty headquarters of the world (World Poverty Clock 2020). Unfortunately, the recent global pandemic (COVID-19) is eroding the progress made in poverty reduction in recent times (Meij et al. 2020). According to World Poverty Clock (2020), about 743.3 million people of the world population are still living in abject poverty and SDGs is a global commitment to garner both individual countries and cooperation against poverty and ensuring better lives for those who have it demeaned.

27 Digital technologies are relevant in reducing and eradicating poverty because its adoption reduces corruption, which is the bane of poverty, insecurity and terrorism (Baxtiyarjon and Jurayevich 2020). Digital technologies are a big push tool in stimulating economic progress in terms of financial management. Noting that aside systemic and structural deficit, financial mismanagement, corruption in all forms contributed in no small measure to the economic backwardness of the developing countries, which are mostly oil-rich states as well. Furthermore, the use of digital technologies in the allocation of resources reduces inequalities, more so, on the positive side, it reduces inequalities in terms of services provided. Now mobile phones and internet reach more people than the fixed land-line, even in the developing countries of the world (Daño et al. 2012). All and sundry could afford to have at least one mobile phone, even a petty trader in the market square. This inclusion comes with a plethora of goodies for the populace, such as an easy accessibility of information, communication, reallocation of time to productive activities.

28 Lack of access to finance has been considered as the major lead for an individual as well as a household to the poverty threshold. Exclusion of an individual and a household from financial services goes along in keeping such in the poverty threshold. Exclusion is tantamount to deprivation, even in the time of dire need for such financial resources. Meanwhile, financial inclusion gives access to financial resources and the possibility of meeting precautionary demand, thus, such an individual or a household would escape possible deterioration of livelihood. Financial inclusion has been known to smoothing consumption of an individual or a household who are included. More so, it helps in securing surplus cash as well as allows the intermediate surplus owners to have a return on their surpluses. Furthermore, the essence of any financial setup is to intermediate between the ultimate surplus unit and the ultimate deficit unit. Financial setup or financial intermediation services involve a formal sector, a semiformal sector and an informal sector, which cover savings and credit associations; informal financial firms; nonregistered self-help groups; individual moneylenders and NGOs (Ledgerwood 1998).

29 6. Digital Technologies and Expanded Opportunities

30 Digital technologies make possible more business opportunities while expanding the horizon of the existing businesses. The advent of the digital technologies in the financial sector had prompted the release of holding-up manpower by the way of reducing the number of people that perform a particular task, and as well increased productivity by the way of increasing tasks/activities an employee could achieve or perform within the given time. Today, loan decision is taking in the twinkle of an eye, and paperless in most instances. According to World Bank, “Robo-advice” had around US$400 billion in 2018 and is expected to grow to around US$1.5 trillion by 2023 (Nakicenovic et al. 2019). All over the countries of the world, Robo-advice, which is based on AI and machine learning, is now replacing traditional financial adviser. Also, cryptocurrency is worth US$160.4 billion worldwide (Reiff 2020).

31 Also, digital technologies tend to digital finance, financial technology and blockchain among others. These outlets have engaged so many young and innovative individuals with creativity drive. Fintech serves the banking sector well by increasing its

profitability by the way of cutting cost, improved and increased productivity. It enhanced inclusion in the sector, that is why, the number of financially excluded individuals is declining, though, 1.7 billion adults are still excluded as at 2017 (Demirgüç-Kunt et al. 2018).

32 Furthermore, business expansion through digitalization created about 1.3 per cent (10 million) of China's employment due to the e-commerce boom (World Bank 2016). Furthermore, on job creation, the UK employed 1.3 million people in 2014, 5% of all employees. European countries which are leading in digitalization, such as Denmark, Sweden, Finland, are estimated to have 1.6 – 2.3 million new jobs above those phased jobs (World Bank 2016), while around 500,000 jobs were credited to the development of mobile application in the United States of America between 2011 and 2015 (World Bank 2016). Digital technologies are vital tools in creating a decent job and making individual and household economics viable.

33 Digital technologies are profiting economic growth as rapid innovative activities are creating jobs. In buttressing this fact, digital technologies account for 6 per cent of GDP in OECD countries (World Bank 2016). Digital technologies are expanding opportunities in economies of the world and making ancillary to trade become flexible, which further promotes economic activities for the better welfare of all. Figure 4 shows how financial technological innovation is disrupting financial services.

34

35 Figure 4: Digital Technological Disruptive Innovation Clusters in the Six Key Financial Services. Source: McWaters (2015).

36 7. Give and Take Game of DT and SD: Drive Inclusion and Reduce Vulnerability

37 Digital technologies and Sustainable Development Goals (SDGs) are give-and-take initiatives. Digital inclusion of populace would result in reducing their vulnerability. Hypothetical instance, a digitally inclusive farming group, existing in a region, due to centrally digital monitoring of weather, were alerted to plant earlier because it was forecasted that rain would start and stop earlier. At least, this initiative would help farmers not to plant late, especially, when the irrigation system does not apply to them. Digital inclusion of these farmers has helped them escape a drought vulnerability, which may translate to a loss of income for the household and shortage of food. This hypothetical case is applicable in all sectors of the economy. Actualising SDGs would be an important answer to digital technologies inclusion of the populace.

38 In the same vein, the government of every nation needs to ensure that the issue of the 'digital divide' is promptly tackled and remember that SDGs is holistic and unison. Digital division implies the exclusion of a certain part as a result of the lack of access, which is based on physical reality around the excluded population (Nakicenovic et al. 2019). Electricity and internet among other physical infrastructures are needed to drive digital technologies. Meanwhile, some of these vital infrastructures are still lacking in the larger space of the world, especially, in the developing countries. So many developing countries are generating electricity far below the needed capacity for their population. In Nigeria, electricity generation has never crossed 8000kW since the independence of the country with a current population above 200 million. This kind of development is an implicit form of exclusion from digital technologies. Meanwhile, all the forms of exclusion must be addressed with a strong political will to make real the escaping of the vulnerability of the populace. Considering Figure 2 again, over 50% of the Nigerian population were still offline (not internet users) as of 2015 (World Bank 2016).

39 8. Effectiveness of Digital Technologies in Driving Sustainable Development Anchors on an Inclusive Economy

40 Digital divide, which is the exclusion of a (some) part(s) is a big concern because exclusion would imply the impossibility of the manifestation of the embedded innovations in the inclusion. Digital technologies are a means of charting the achievement of global goals of sustainable development. It should be noted that what drives the digital divide is not limited to a non-inclusive economy; legal challenges that associate with digital technologies equally prompt digital divide. Both public and private individuals/sectors need to work hand-in-hand to address whatever factor that might be prompting the digital divide in addition to the lack or inadequate infrastructure. These factors could be categorised into two, thus, hard and soft digital infrastructures; and legal challenges. Factors border on legal challenges is not general but peculiar with the existing laws and regulation obtainable in each geographical setting and/or nationality. This is so because the regulatory response of countries to the issue of digital technologies differs. Some developing countries cannot be compared to the USA or China or Russia in the regulatory response; this might not imply that these countries are very swift but that they learn their lessons earlier as they have the innovation earlier as well.

41 Digital technological inclusion drives inclusive economy on its right. Meanwhile, inclusion births innovations. In the same vein, digital technological inclusion promotes efficiency and information in the financial sector. Acceleration of SDGs attainment is witnessed when the populace enjoyed digital technological inclusion. (See Figure 5 for the diagrammatic representation, according to the Sustainable Digital Finance Alliance (2018)).

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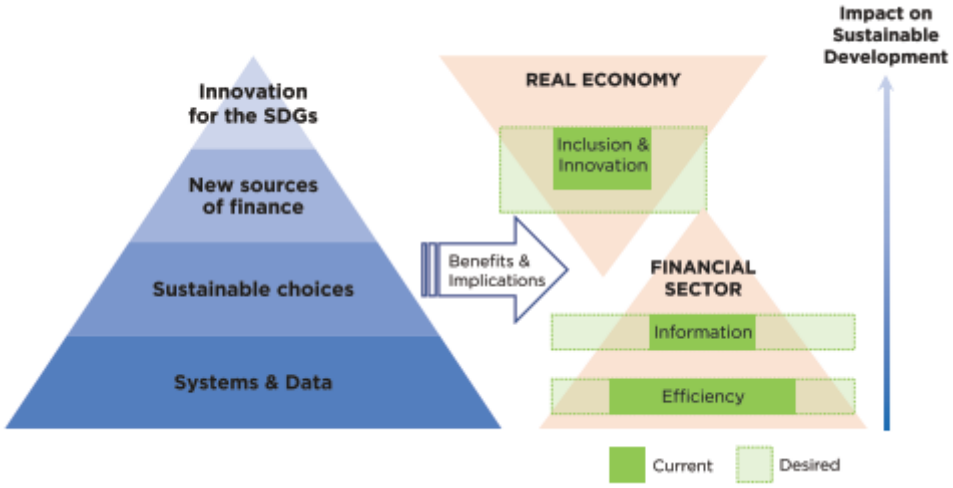

43 Figure 5: Implication of Digital Finance for Sustainable Development.Source: Sustainable Digital Finance Alliance (2018).

44 9. A Dual Challenge of Sustainability and Inclusivity

45 The digital technologies have come to stay, even its components (digital finance-cryptocurrency, etc.) that are yet to gain legal backing of the state actors would have the backing over time. How long it would take may not be ascertained, but it would surely come to pass. Already, some banks have been putting blockchain into use in Russia (Zharova and Lloyd 2018). It is just a matter of time as some economically leading countries take the lead, as usual, others which are found of catching up later would join in the adoption of such digital technology features. The challenges should be and would be – how to sustain the adoption and how to make it inclusive from the legal perspective? There is no gainsaying about the relevancy and the usefulness of digital technologies in achieving sustainable development goals. Facts and figures justify this position of relevancy and usefulness, what is now needed is to look at the challenges inhibiting inclusiveness and aiding digital divide.

46 Sustainability as a challenge of digital technologies is a concern that can be majorly addressed by the government without excluding private individuals who are inspired by the need for societal development. The government must ensure that there is a structural plan of what it wants the country to look like, with a clear blueprint of how the goal would be achieved. Actions on the blueprint of what the government wants to achieve must be simultaneous with the provision of social capital and all other necessary infrastructure facilities and services. The political will for the provision of these facilities/services must be pronounced and followed with prompt actions as and when needed. Access road, electricity, market, affordable health care services, technical know-

how from the trained graduates of the educational institute must be available before any private individual or corporation can come around for (digital technologies related) service provision. The solution to the challenge of sustainability is mostly pioneered by the government of a country.

47 Inclusivity as a challenge of digital technologies borders on legal concerns. Some individuals are within the mobile network coverage and have a sustained income, from which they could afford a digitally-enabled phone or a smartphone but refuse to explore the phone's function that is beyond making and receiving calls. These are individuals who are generationally and technologically lagging. Their concerns border on issues such as identity stealing, the certainty of their electronic transaction, digital security, protection and deterrence.

48 Cases of the individuals who are facing inclusivity challenge might seem humorous. It is unimaginable to see Individual A (name withheld), who received his PhD in Economics from one of the leading universities in the United Kingdom and worked with the international organisation, showing apathy to e-banking. Another person, Individual B (name not mentioned) was a PhD student in Engineering program in one of the top-ranking universities in the world. One day, Individual B received about 2 to 3 short message services (SMS) from his bank in Africa, and quickly alerted the bank that somebody was playing a trick with his account. Let us discuss a case of another person called Individual C. He was instructed how to carry out an international financial transaction, such as an online payment using MasterCard, but Individual C said: "Never would they steal my little money". There are many more cases when individuals – learned people with PhDs in their respective fields – demonstrate suspicion and exhibit a strong apathy to any form of e-payment.

49 Why do they exhibit a strong apathy to e-payment (especially to international payment)? *Caveat emptor,* usually issued by banks (by the Nigerian banks, in this instance) about e-payment, makes *Individual C* practise self-exclusion in banking-related activities, which partly occurs because s/he could receive money electronically, but e-payment is not feasible for them. In this instance, *legal certainty* is questioned, and the position of banks is not helpful, though the banks are based in accordance with the international law and ensure the protection of the merchant. Once the bank has no power to reverse or refund your money when an international payment (e-payment) is made, you must have a document from the merchant showing that you were trying to disclaim that s/he did not claim the money and that it is not going to be claimed before such a reversal/refund can be processed. The client/customer claim is not enforceable and admissible with his/her financial institution until the involving merchant concurs with the claim and issues a disclaimer that confirms the authenticity of the claim.

50 For Individual B self-exclusion borders on legal protection and deterrence. Although, he was over-suspicious, he had assurance that even though the money was stolen from his account his bank would trace it out and recover his financial resources for him (a duty of care from his financial institution). Also, he had assurance that his bank would ensure that the criminal case was instituted against the hacker and the hacker was sentenced accordingly. Then, there is a possibility that such individuals would not practice self-exclusion. Similarly, Individual A practiced self-exclusion in e-banking, except for a banker who, as his account manager, carried it out for him on his

order. He excluded himself for the fear of identity theft. Individual A was concerned about the security of his wealth. He thought that the moment he entered any of his details online to profile for e-banking, he became vulnerable to hacking. If the security of property can be well enforced on the online vicinity, and legal deterrence is well pronounced in an instance of hacking, the individuals, whose cases are described above, would probably avert from practising self-exclusion as much as possible. The security of data provided by a client or a customer, especially, in an instance of free services (Friedrich-Ebert-Stiftung Rwanda 2019), should be ensured. The extent of what the collected information would be used for should be made known to the information owner.

51 Consider Figure 6, as adapted from the UN Task Team Report on the Post-2015 UN Development Agenda and cited in UNICEF 2015. The figure introduces rule of law to the commonly known three pillars of sustainable development and asserts that the blend of rule of law with three pillars is what makes a sustained human, with human rights as a core concept. The anticipated sustainable development cannot happen without inclusion or blend of rule of law.

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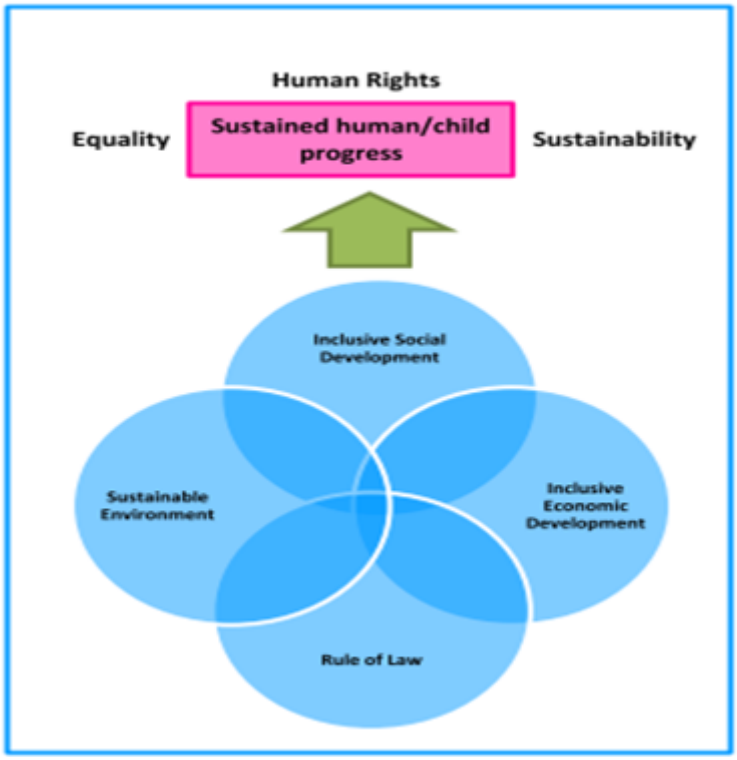

53 Figure 6: Sustainable Development Framework. Source: UNICEF (2015)

54 Rule of law is not just an integral part but an essential part of actualising Sustainable Development Goals (SDGs). All legal concepts that would encourage repose of interest in the digital technologies should be followed up for a valid position in the law of the land as it may apply to each country. The issues of legal certainty, security, protection and deterrence should be logically pursued by the learned fellows till it gains a right footing in the law governing the land (United Nations 2007). Lawyers/Barristers/Solicitors (learned persons) should serve as the watchdog in

directing the paths of the law in maintaining the right position that would stimulate and prompt digital technological inclusion.

55 10. Conclusion and Recommendations

56 Encompassing relationship is established between digital technologies and Sustainable Development Goals, as digitalisation and governance were set to be the universality set for the three pillars of sustainable development. Furthermore, digital technologies have changed the way SDGs are pursued and, fortunately, accelerated SDGs attainment, especially, when it is inclusive. The relationship between the two concepts is not without challenges. The challenges border on provision and availability of infrastructural facilities for the digital technologies and legal issues, such as security, protection, certainty and deterrence among other possible legal challenges. Mobile phones are the major driver of digital technologies inclusion, and this helps in tackling poverty (No Poverty), which is number one of SDGs. This major driver of the digital technological inclusion made the financial inclusion possible as well, as the majority of the populace have mobile phones. Meanwhile, response to the financial need through the financial inclusion is a response to 'No Poverty'. Digital technologies inclusion is more or less a give-and-take game with sustainable development because when the populace is included, vulnerability reduces. Also, in a reverse mode, effective digital technological inclusion is premised on a sustainable and inclusive economy. Governments and learned persons need to concern their selves with the sustainability of the digital technological infrastructures and facilities on the one hand, and rule of law that would promote inclusivity on the other hand respectively.

57 It is recommended that governments at all levels and institutions should be responsible for the provision of more digital technological facilities and infrastructures as well as for the provision of more basic amenities that would encourage investors in the area. Governments jointly with the private individuals should be prompt in taking actions (such as reporting fault) about safety and maintenance of the physical facilities and all other social capital, while the custodians of law (mostly lawyers – learned persons) should put under their surveillance any legal challenge that promotes exclusion and remedy such through the provision of law. This duty of care would be substantial enough to stimulate further inclusivity and hamper self-exclusion.

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Digital Technologies for Sustainable Development: Dual Challenge of Sustainability and Inclusivity Perspective

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Abstract

This paper is a desk-review study and considers digital technologies for sustainable development: a challenge of sustainability and inclusivity. It takes a glance at the interaction of digital technologies and sustainable development, legal challenges of sustainable development. Digital technological inclusion of populace was based on mobile phones, which equally facilitate financial inclusion and help in reducing poverty. Digital technologies have ample of expanded opportunities for businesses and economic growth. Also, digital technologies have been successfully proved to be relevant. Digital technologies have changed the way SDGs are pursued and, fortunately, accelerated SDGs attainment, especially, when it is inclusive. Sustainability and inclusivity of digital technologies should be the challenge to be bordered about maximizing the gains from its adoption in promoting sustainable development. It is recommended that governments at all levels and institutions should be responsible for the provision of more digital technological facilities and infrastructures as well as for the provision of more basic amenities that would encourage investors in the area. Governments jointly with the private individuals should be prompt in taking actions (such as reporting fault) about safety and maintenance of the physical facilities and all other social capital, while the custodians of law (mostly lawyers – learned persons) should put under their surveillance any legal challenge that promotes exclusion and remedy such through the provision of law.

Keywords: digital technologies, sustainable development, financial inclusion, legal certainty

Publication date: 02.07.2021

Citation link:

Gidigbi M. Digital Technologies for Sustainable Development: Dual Challenge of Sustainability and Inclusivity Perspective // Law & Digital Technologies – 2021. – V. 1. – № 1 C. 27-36 [Electronic resource]. URL: https://ldt-journal.com/S123456780015729-2-1 (circulation date: 20.04.2024). DOI: 10.18254/S123456780015729-2