22nd ANNUAL SYMPOSIUM

NAMIBIA BEYOND COVID-19:

Digital Transformation for Sustainable Economic Development

Bank of Namibia

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Preface

The Bank of Namibia held its 22nd Annual Symposium at the Safari Hotel on the 4th of November 2021 under the theme: Namibia beyond COVID-19: Digital Transformation for sustainable economic development. The symposium theme focused on Digital Transformation, and how Namibia can leverage it to achieve economic development. Digital applications are already driving socio-economic transformation, increasing efficient production and distribution of goods and services, opening-up new opportunities for income generation for thousands of poor people, enhancing connectivity between people, societies, government and organisations. It is against this backdrop that the symposium was organised under this theme, in hope of advancing the country and become a digital economy through sustained economic growth.

The 22nd Annual Symposium Aimed to Achieve the Following Objectives:

a) What can the country improve on to leverage digital transformation?
b) How can infrastructure sharing be promoted and help the penetration of the rural regions fully?
c) How should the development of the necessary skills needed in the country be approached?
d) How do regulators create a conducive environment that fosters innovation in digitalisation?

These issues, among others were addressed through presentations given by local and international speakers and supplemented by a panel discussion comprising of representatives from the University of Johannesburg, Communications Regulatory Authority of Namibia (CRAN), Mobile Telecommunications Company (MTC), University of Science and Technology (NUST) and the Bank of Namibia.

This booklet contains the papers presented by the speakers at the symposium. It also includes a summary of the key policy issues emanating from the symposium and recommendations on the way forward.

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1. Welcoming Remarks

By:
Mr. Johannes !Gawaxab,
Governor of the Bank of Namibia

Director of Ceremonies
Honourable Jenelly Matundu, Deputy Minister of International Relations and Cooperation,
Honourable Ministers and Deputy Ministers Present,
Members of Parliament,
Honourable Regional Governors and Councilors,
Members of the Diplomatic Corps,
Executive Directors of Government Offices/Ministries and Agencies,
Deputy Governor and Board Members of the Bank of Namibia,
Distinguished Speakers,
Distinguished Panelists,
Captains of Industry,
Members of the Media,
All invited guests,

Ladies and Gentlemen,
Good Morning!

1. **It is my profound honour to welcome you to the Bank of Namibia's 22nd Annual Symposium.** I wish to express my gratitude and appreciation to our invited guests and discussants for availing time to be with us on this occasion and share their views and knowledge on this important topic.

2. **The Annual Symposium of the Bank of Namibia aims to contribute to the development and economic policy discourse in Namibia**. Annually, the Bank identifies an important development and economic issue facing Namibia, to which the Bank can contribute. The Annual Symposium is therefore a forum designed to bring together policy experts, academics and economic development stakeholders to discuss the economic and policy issues on the identified topic. The Annual Symposium of the Bank is thus a national platform where we engage as Namibians, supported by our international friends. It is very critical, at the onset, to emphasize that the Bank's annual symposium is not meant to be a mere talk show, but rather a forum aimed at harnessing the ideas, and package them into actionable strategies and recommendations for implementation. Therefore, the engagements with the relevant stakeholders for the implementation of these policy recommendations will continue beyond the symposium.

3. **One such engagement is the recently held stakeholder engagement on the 2nd of November 2021 with various captains of industry to discuss strategic ways of digitalizing the country**. We had high-level representation from the various commercial banks, telecommunications industry, relevant

ministries, as well as representatives from the regulatory space. We had fruitful discussions where various challenges were highlighted and we, as the Bank, have actively started the process of investigating ways of mitigating these challenges.

4. **This year's symposium theme is focusing on Digital Transformation, and how we as a country can leverage it to achieve economic development.** There are many ways one might define a digital economy. Some would define it as a mind-set focused on the customer and enabled by technology. Today, I'd like to offer the following definition and understanding by Professor Brian Armstrong of Wits Business School: A digital economy (he states), can be defined as an economy that drives the general production and consumption of goods and services through digital platforms. Such an economy is formed by facilitating online connections between people, processes, data, services, businesses, and the Government.

5. **Director of Ceremonies, ladies and gentlemen, many of you already know that this new digital economy is not a distant aspiration**. It is happening already, right now and right here at home. I am certain you would agree with me that no sector is spared in this regard, from Government to all industries of our economy. New business models are created every day, advances in technology continue to change our landscape, and new operating models establish themselves in almost every sector. This has disrupted old ways to a certain extent and those unwilling to embrace this reality will be the laggards of today and tomorrow.

6. **These advancements must be leveraged to make things more convenient in an environment that is fast, efficient, and, most importantly, safe for everyone concerned**. If we are not to lose out on the opportunities in the digital economy, we must make tough decisions to re-organise ourselves for speed and agility, and also to update our mental models. This applies to the government, our businesses, and our people. The faster we adapt, the faster we can recover. There is no place for treading water and waiting for normalcy to return. The proverbial bus would have left us behind.

7. **Digital technology can drive innovation, economic growth and job creation in many key sectors of the economy, and allows for greater interconnection of African markets with one another and with the rest of the world**. It can enhance both market and financial access and inclusion, particularly in marginalized areas neglected by the traditional financial system. Promoting digitalization in Africa, and particularly in Namibia, will maximize our impact in sectors such as health, energy, transport, agriculture, education and facilitate access to basic social services, consistent with our broader good governance and development policies and programmes.

8. **Digital applications are already driving socio-economic transformation**, increasing efficient production and distribution of goods and services, opening-up new opportunities for income generation for thousands of poor people, enhancing connectivity between people, societies, government and organizations. In the financial sector, we are already seeing the benefit of accelerated digitization and technology. Through the e-wallets, blue wallets, and easy wallets, it is now more convenient and cheaper to transmit money to rural and remote residents. We must leverage these gains and facilitate financial inclusion and banking of the unbanked.

9. **Director of ceremonies, ladies and gentlemen, one might wonder how digital transformation is driving this socio-economic transformation and how it is important for economic development. We can summarize this in three ways**:
   - **First, improving the efficiency and transparency of government services can generate impressive savings**. Using digital technology, Rwanda was able to increase annual revenue by more than 6 percent. South Africa reduced the cost of tax collection by 22 percent. By shortening the time needed to open a business, using e-commerce platforms, countries such as Mauritania, Rwanda and Senegal have fostered growth in small and medium enterprises.
   - **Second, technology can help low-income countries improve the environment for small and medium enterprises, including through better access to financing**. One such opportunity is in e-commerce, which is particularly suited to the micro, small, and medium enterprises. e-Commerce platforms provide access to a broader range of buyers. Some platforms offer services—payment processing, customer service, shipping, return handling, and delivery — that significantly lower costs.
   - **Third, the digital economy is opening up the service sector, a growing share of the economy of many low-income countries**. In the new digital environment, digital technologies (e.g., cloud computing, artificial intelligence, smartphones, mobile apps, etc.) are transforming the service sector, as in the emblematic case of fintech, as well as manufacturing. In fields from transportation, to delivery, to medical diagnostics, to accounting, low-income countries can find areas of comparative advantage with the right policy environment.

10. **However, in order for us as a country to fully realize the said benefits, we need to embrace digitalization fully as a country**. And this leads to my next point, how the Bank of Namibia has embraced digitalization and what it is doing to assist the acceleration of digital transformation. Let me start off by addressing the role of the central bank in this rapidly changing landscape.

11. **The role of the Bank is essential in the advancement of a digital economy**. The Bank can help speed up an environment where modern advances are possible, particularly in the financial sector. Our policies need to ensure the safety, efficiency and stability of the financial system, and each stakeholder within the system.

12. **There are several possible reasons why financial stability may be at risk**. The emergence of new types of institutions providing financial services is akin to financial liberalization, as some of the activities of these institutions lie outside the perimeter of the regulatory system. Innovations brought by Fintech and BigTech include the introduction of products whose risk characteristics are not well known and which can have systemic stability consequences. For example, rapid growth of P2P lending by FinTech firms may in some jurisdictions lead to an increased incidence of non-performing loans in the absence of a robust regulatory response.

13. **Regulators must therefore be vigilant and ready to adapt to the new financial landscape**. New entrants that are not yet included in the perimeter of the regulatory system must be monitored, and potential systemic consequences of new sources of risk to individual institutions must be continuously assessed. As some activities of unregulated institutions are indistinguishable from the same activities in regulated institutions, there is a risk of regulatory arbitrage taking place. It is therefore imperative that regulatory frameworks be adjusted to focus on activities rather than on institutions.

14. **Payment systems have evolved and digitization has been an important contributor**. Transfers are now more rapid as real-time gross settlement systems have been introduced in many jurisdictions for wholesale payments and fast payments for retail transactions are becoming more common. The decreased cost of cross-border transfers has been noted as one of the important potential benefits of using financial technology.

15. **Financial technology applied to payments has also contributed significantly to financial inclusion**, whereby formerly non-banked individuals and households have not only been able to carry out transactions via mobile phones, but also access basic financial services in the form of placing deposits and receiving loans.

16. **Financial innovation and products resulting from financial technology also have a bearing on the monetary policy transmission mechanism, and on many other functions ordinarily performed by a central bank, such as credible currency issuance**. We continue to increase our research capacity to study all these rapid developments so that we take informed supportive policy positions.

17. **Within its mandate, the Bank of Namibia has done the following**:

- In ensuring financial inclusion, the Bank is spearheading and advocating for SME development and financing. Government prioritized SME development over the last 2 decades, due to its potential to contribute to job creation and poverty alleviation. However, access to finance has been identified as a major challenge for SME development in Namibia. In this regard, the Namibia Financial Sector Strategy thus recommends consideration for the establishment of a National Risk Facility to bridge the financing gap that is experienced by SME's in Namibia. This work culminated in what we now refer to as “the SME Financing Strategy” with three interlinked facilities aimed at addressing the multiple challenges facing SME's. These facilities are the Credit Guarantee Scheme, the Venture Capital Fund as we all as the Mentoring and Coaching Programme. The Strategy is being implemented by the Development Bank of Namibia as per Cabinet direction.
- Bank of Namibia is taking a strategic approach to digital transformation and has put in place a Digital Transformation and Innovation Committee. The committee is designed to spearhead, and facilitate initiatives in the Bank, with a long-term view to facilitate the same ambitions in the Financial Sector at large. One of the first tasks for this **Committee is to explore the establishment of a Central Bank Digital Currency (CDBC). While this may be a long-term initiative, no time can be spared to start early to gain a thorough understanding of the legal, technical, technological, and social impact it may have on the Namibian economy.**
- The Bank is also forming a view on crypto assets while continuing to monitor the impact of this technology. We agree that blockchain technology, the underlying technology that enables crypto assets is an innovation that can be deployed. Additionally, advances in Fintech are also increasing in the country, and a strategy is necessary to accommodate these emerging players in the market. We can do so by creating an oversight platform, alongside other regulators, to test new products and services in a controlled environment. These controlled environments are referred to as Regulatory Sandboxes, where Fintech innovations can be tested in a controlled live environment with the Bank’s approval and cooperation between regulator and innovator. This is likely to transform the domestic digital landscape.
- The Bank is also investigating instant payment models in countries such as Brazil and India for affordable payment infrastructure that can further advance and facilitate financial inclusion. We can learn from our sister Central Banks through close benchmarking initiatives. Cooperation within the SADC community on Regional Payment Systems Integration has grown substantially with the implementation of the SADC Real-Time Gross Settlement systems to facilitate trade within the SADC region.

18. **Ladies and gentlemen, success in the digital age will not come without challenges and obstacles**. Although technological change is essential for economic growth and sustainable development, it can initially widen inequalities. From a user perspective, recent technological advances could bring significant benefits that touch on all of the Sustainable Development Goals. However, not everyone has immediate access to such progress, such as life-saving treatment, clean water, specific knowledge or a piece of technology. If the dissemination of new technologies is limited to already advantaged groups, this could reinforce a vicious cycle that widens existing inequalities. For example, those with higher incomes tend to be the first to adopt new technologies. Such differential access creates new opportunities in areas such as education, health and employment for those already possessing an advantage.

19. **Therefore, to harness rapid technological change for inclusive and sustainable development**, the government and other stakeholders need to ensure that on the user side, the benefits of frontier technologies reach the greatest number of people and, in particular, the most vulnerable and those further behind. We also need to ensure that rapid technological change results in more and better jobs in the country, that those caught on the losing side during a transition have the support to find new livelihood paths with dignity, that innovation in frontier technologies is carried out alongside healthy competition to avoid excessive market concentration. This will require the government and other quasi-government institutions as well as the private sector to invest in infrastructure development to close the gap of potential inequality.

20. **A considerable number (about 50%) of our population lives in rural areas**. While advances are likely to continue in urban areas, it is equally important not to lose sight of bringing all citizens on this journey, no matter where they live. Access and inclusion in the information and communication technologies require national infrastructure that spans across the whole country.

21. **Another challenge we face in such a digitally advancing economy is people's privacy and safety** in a world where cyber threats are on a rapid increase. While plans are underway to modernise, we must think of building our digital infrastructure with security in mind.

22. **Ladies and gentlemen, my remarks are not aimed at preempting the discussions and ideas that we will have during the course of this symposium**. They are not to create an impression that we know and have all the solutions with regard to digital transformation, and how Namibia can exploit the opportunities fully. However, I believe, as a Bank, central to the

macroeconomic development of our country, we have a duty to spearhead these discussions and coordinate policy solutions. The symposium therefore offers us the opportunity to collectively reflect and deliberate on this important topic, particularly around the following questions, which I believe are crucial to transforming the Namibian economy, and converting challenges into opportunities:

i. What can the country improve on to leverage on digital transformation?
ii. Are there options for green ICT initiatives?
iii. Can we promote infrastructure sharing and penetrate the rural regions fully?
iv. How do we develop the necessary skills needed in the country?
v. How do we, as regulators, create a conducive environment that fosters innovation in digitalization?

23. **In conclusion, I believe we have an opportunity to transform the Namibian economy through mutual opportunities**. The road ahead is long and exciting, yet filled with challenges, but equally so, the opportunities are plentiful. We need to come to terms with the fact that the digital world touches all the spheres of our lives and will certainly, for the next 15 years and beyond, shape the future. It then becomes important for our collective focus to be on execution and delivering on our respective mandates for Namibians with the digital future in mind. We must work together in all sectors and through all stakeholders to make the Namibian dream a reality. Let us leverage technology to help us exit the COVID-19 pandemic, mitigate the negative consequences of disrupted and lost schooling and teaching, and raise productivity in our economy. As we emerge from this pandemic, we cannot return to the old ways of doing things, as the cliché goes, not business as usual. We must, therefore, use the current challenges to transform our economy and adapt to the inevitable changes in order to create shared prosperity for all our people.

24. **To this end, it is my belief that**, while the pandemic has undoubtedly accentuated imbalances that existed for decades, it also presents an opportunity particularly for developing economies, to ride the pandemic-induced digital wave as we chart new and creative paths that catapult faster and sustainable economic growth to improve the living standards of our people.

25. **I look forward to fruitful discussions on possible solutions.** I thank you for your kind attention and profoundly welcome you to this event!

2. Keynote Address

By:
Honourable Ms Jenelly Matundu, Deputy Minister –
Ministry of International Relations and Cooperation

Director of Ceremonies;
Mr. Johannes !Gawaxab, Governor: Bank of Namibia;
Mr. Mbeuta Ua-Ndjarakana, ED: Ministry of Information, Communication Technology
Mr. Ebson Uanguta, Deputy Governor Bank of Namibia;
Dr. Licky R. Erastus, Chief Executive Officer; Mobile Telecommunications Company Limited (MTC);
Ms. Emilia Nghikembua, Chief Executive Officer; Communications Regulatory Authority of Namibia (CRAN);
Members of the Media.

Ladies and Gentlemen,

1. **I am greatly honored to have been invited to participate** in the Bank of Namibia's, 22nd Annual Symposium under the theme Namibia Beyond COVID-19: Digital Transformation for Sustainable Economic Development.

2. **Upon the COVID-19 Pandemic outbreak we saw countries dramatically impacted from infrastructure, organization, and enterprise, the global consensus is that the world will never be the same again**. Therefore, the theme of this Symposium is very relevant as all countries of the World and organizations are developing strategies for Post - COVID recovery. That explained why the 76th session of the UN General Assembly was convened under the theme "building resilience through hopes- to recover from COVID-19, rebuild sustainability, respond to the needs of the planet, respect the rights of the people and revitalize the United Nations". All the discussions are speaking to moving beyond COVID together using available tools including opportunities provided by digital regimes.

3. **The pandemic has not only changed the world, but it has also exposed the weaknesses in national, global institutions and international cooperation**. It has brought the world to an unprecedented halt. The pandemic does not respect borders, nor the status of a country as developed or developing. However, we have to accept that due to the level of development African Countries including Namibia felt more the impact of the pandemic, hence a call for Africa to change course and develop strategies to speed up the implementation of the continental Development agenda namely Agenda 2063 and the African Continental Free Trade Area. The development of Africa is determined by what is happening in individual member states. Therefore, Namibia has to play her part and if Digital Transforms is the way to go it must be embraced.

4. **The past year has seen the dominant role of Communication Technology in Education, (online studies), in Business, Multilateralism, Bilateral and even in Economic Diplomacy, through virtual meetings**. But we have to

accept that in some situations virtual meetings are found not to have be very effective, hence we are observing high demand of face to face meetings. The examples is the 76th UN General Assembly, the 39th meeting of the AU Executive Council and the on going COP 26 UN Climate Change Conference. To that end digital transformation may have limits in some areas of human activities, especially when body language gives a certain level of necessity information.

Director of Ceremonies,

5. **The economic crisis induced by COVID-19 is unprecedented in terms of speed, depth, and global reach**. Countries around the world are pondering the new direction of economic diplomacy, national priorities, and positions on bilateral and multilateral issues. All this are imperatives to resuscitate eroded economies and resignation people's livelihoods to normalcy after COVID-19, for Sustainable Development to be realised. There is an urgent need to recalibrate, reposition and re-purpose initiatives to boost a recovery strategy for countries including Namibia post - COVID- 19. This will require a coordinated exit strategy, a comprehensive recovery plan looking at all sectors of the economy and using all available mechanism including digital transformation. We must come to the point when we look at targeted investments, both by local and foreign investors.

Director of Ceremonies,

6. **Namibia has not depended on budgetary support from development partners and has maintained fairly balanced fiscal prudence and discipline over the years, despite the economic headwinds**. Fiscal consolidation in the post-COVID period will be tough given the constrained fiscal space. The primary objective for economic diplomacy is to be competitive in stimulating our economy. However, to remain competitive in the diplomatic sphere, Namibia needs to optimize its policy regarding global diplomacy, and place greater emphasis on the strategic interests encompassed in our economic diplomacy. The main challenge for Namibia's economic diplomacy will be to devise meaningful and practical ways to contribute to the Government's plans for economic recovery, strengthen the resilience of strategic sectors, and compete for Foreign Direct Investment, FDI. In view of the negative impacts of COVID-19 on both the global and domestic economy. Yesterday, the minister of Finance has presented the mid-term review budget, which is clearly a pointer on how we should move post- COVID- 19 recovery.

7. **Therefore, Namibia's economic diplomacy intends to address the structural challenges and vulnerabilities that the COVID-19 pandemic has revealed in our domestic economy and the manner in which we are integrated into global value chains**. As a Ministry of International Relations

and Cooperation we urge our 21st century diplomats to be entrepreneurial with a clear focus on what investments are required, with tangible costed national investment projects being clearly outlined in advance by the sectors and institutions of government, in a transparent fashion.

Ladies and Gentlemen,

8. **As we harness the thrust of digital transformation, we have come to embrace it as a permanent journey forward**. However, in as much as we are digitizing our communities, we must address the digital divides by ensuring that small and rural communities are similarly able to participate and embrace this digital acceleration for full participation on these digital platforms and for them to make an input and benefit from the national development programs. We are aware of the challenges of accessibility. Security, ethics, and integrity on digital platforms, are to be addressed.

9. **In order to address these challenges, we need to achieve high levels of inclusion and build trust with the customers from the start of any digital development**. It should become a systematic component weaved into future digitization strategies.

Director of Ceremonies,

10. **Furthermore, as we increase the usage of Digital platforms, we need to be aware of the unfortunate consequence of increased digital technologies which may lead to loss of jobs**. I strongly urge that as we increase our digital capabilities to keep up with the 4th Industrial Revolution, we must consider the Human Life and provide for alternative employment opportunities. Hence a need to invest on education, training and re-training to ensure that our human capacity are taken up in new opportunities brought about by Digital Transportation. At all times we must know that an inclusive development is the only Sustainable Development. Therefore, as we embraced digital transformation in the process, we must ensure inclusivity.

11. **Yes, it has been noted that countries that are effectively integrate Information Communication Technology (ICT) in their operations will be able to position themselves for the future, as digitalization in the conduct of business became the norm**. Namibia needs to ensure that we take advantage of digital transformation to advance each industry while upholding the United Nations Sustainable Development Goals specifically SDG's Eight, Decent work on Economic Growth and Nine, Industry, Innovation, and Infrastructure.

I thank you.

3. Overview of Digital Transformation in Namibia

By:
Dr. Bernie Zaaruka
Technical Expert, Bank of Namibia

Charlotte Tjeriko
Senior Economist, Bank of Namibia

Henock Shilongo
Principal Economist, Bank of Namibia

Executive Summary

Digital transformation has received considerable attention over the past several years. The Namibian economy over the past years witnessed a rise in the use of technology to deliver services more efficiently in various industries and sectors such as banking, payment systems, foreign exchange services, insurance, investments, and the public sector. The emergence of the COVID-19 pandemic has led to a surge in digital platforms ranging from electronic commerce (e-commerce), digital payment methods and the provision of electronic services (e-services) from both the public and private sectors. Digital transformation ultimately leads to a digital economy whereby manual processes are improved or replaced by digital technology.

The World Bank's review on Digital Economy for Africa provides the fundamental elements of a digital economy.

The fundamental elements can be summarised into the following pillars:

(i) Telecommunication, electricity services and network infrastructure,
(ii) public and private digital platforms,
(iii) digital financial services,
(iv) digital skills and
(v) the regulatory and policy environment.

Wider access to telecommunications, electricity and reliable network coverage are an important vehicle to drive the agenda of digital transformation in the economy. Equally, investments in digital platforms to reduce manual processes from both government and the private sector will eventually lead to faster and efficient service delivery. Moreover, digital financial services are premised on banks and non-banking financial institutions providing financial services through digital platforms offering convenience and affordable means of performing financial transactions.

Several opportunities, if explored correctly, could expedite digital transformation in the country. The investment in the Equiano cable capacity means that service providers will be able to offer their clients international internet capacity, a much-needed diversified route. An enabling regulatory environment to foster more FinTech services is needed for the financial sector and the economy to realize the FinTech benefits.

Challenges that may limit digital transformation in the country if not addressed, have been highlighted. There is a lack of modern ICT infrastructure, electricity supply and limited internet access in rural and remote areas. The costs of doing business in Namibia remains high and it costs a lot of time and money for new businesses to setup in Namibia. Manual processes and the heavy reliance of cash to

move goods and services creates a huge challenge towards aspirations of a digital economy. There is a lack of fairness between regulated and unregulated entities, as it creates an unlevelled playing field.

The assessment on the various pillars indicate that Namibia has made great strides in digital transformation. The banking and financial institutions have made significant improvements in the digital spheres and have largely moved from cash transactions to more cashless transactions. The country's access to the WACS cable as well as the expected Equiano cable puts the country at a higher level of digital infrastructure. Despite these achievements, the country still has a lot to do, especially in electrification in rural areas as well as the need to advance in the digital platforms pillar as e-commerce merchants and open data in the country are still at a lower level.

Recommendations to alleviate some of the challenges are listed as: Namibia needs to expedite the adoption of digital platforms from both a private and public perspective to reach the aspirations of HPP2; Increase scientific and technological human and institutional capacity; Strengthening infrastructure in ICT and electricity in rural areas to ensure digitalization is countrywide; Access to affordable financial services is critical for poverty reduction and economic growth; Expedite regulatory reforms necessary to fast-track digital transformation; Promote Infrastructure sharing to avoid the multiplicity of initiatives and redundancies in the deployment of infrastructure; There is a need to accelerate data-sharing and drive business growth

i. Introduction

1. **Digital transformation has received considerable attention over the past several years and has intensified with the onset of the COVID-19 pandemic**. Over the past years, the Namibian economy has witnessed a rise in the use of technology to deliver services more efficiently in various industries and sectors such as banking, payment systems, foreign exchange services, insurance, investments, and the public sector. The emergence of the COVID-19 pandemic has seen a surge in digital platforms ranging from electronic commerce (e-commerce), digital payment methods and the provision of electronic services (e-services) from both the public and private sectors. Digital transformation ultimately leads to a digital economy whereby manual processes as well as brick-and-mortar infrastructure are improved or replaced by digital technology.

2. **Four key pillars[1] which can enable Namibia to transition towards a digital economy, are identified within the paper**. The fundamental elements of a digital economy can be summarised into the following pillars,

1 This was guided by the World Bank Group Digital Economy for Africa (DE4A) Country Diagnostic initiative reports.

(i) telecommunication services, electricity supply and network infrastructure, (ii) public and private digital platforms, (iii) digital financial services and (iv) the regulatory and policy environment. Wider access to telecommunications and reliable network coverage is an important vehicle to drive the agenda of digital transformation in the economy. Equally, investments in digital platforms to reduce manual processes from both government and the private sector will eventually lead to faster and efficient service delivery (Feyen, Frost, Gambacorta, Natarajan & Saal, 2021). Moreover, digital financial services are premised on banks, non-banking financial institutions as well as FinTech entities providing financial services through digital platforms offering convenience and affordable means of performing financial transactions.

3. **According to the OECD (2020), the digital economy incorporates all economic activity reliant on, or significantly enhanced using digital technologies, digital infrastructure, digital services, and big data management**. Digitally transforming the economy can therefore be described as the integration of digital technology and innovations into various economic activities with the aim of ultimately achieving a digital economy. The overall objective of digital transformation in the country is to position the country to leverage on the ever-growing technological advancements, digital evolutions, and innovations.

4. **The Bank of Namibia, in an effort to evolve with times, has developed a digital transformation strategy to position the Bank to enhance the efficiency and effectiveness of its operations**. The objective of the digital transformation strategy is to improve the delivery of its services to its stakeholders, both internally and externally, by leveraging technology and digital evolutions or innovations.

5. **The emergence of financial technology[2] (FinTech) entities has disrupted the status quo in terms of financial services delivery**. FinTech companies, as they are known, are competing with traditional banking services by providing cheaper and innovative financial services. While banks have embraced technology to deliver financial services more efficiently, the evolution of FinTech entities has led to more consumer choice and convenient ways of making payments. Due to their lean structures, FinTech companies, such as PayPal, can deploy a myriad of financial innovations across multiple jurisdictions seamlessly and efficiently without establishing physical presence in most of the jurisdictions (OECD, 2020). While most FinTech innovations are deemed beneficial to the financial sector and bring about efficient financial services to consumers, they are usually not accommodated by existing laws or regulations

2 There is a distinction between financial technology (also used by traditional banks) and FinTech companies providing innovative payments and other financial services. This section refers to FinTech companies.

and may create risks in the financial system due to the absence of any laws or regulations. In response, regulators often develop FinTech regulatory frameworks to oversee the operations of FinTechs in controlled environments such as regulatory sandboxes and innovations hubs.

6. **From a regulatory perspective, the Bank of Namibia recently developed a Financial Technology (FinTech) Regulatory Framework**. The Framework aims to provide guidance on how the Bank will treat FinTech innovations that are not already subjected to the Bank's existing regulations. The Bank intends to subject FinTech innovations to a phased regulatory programme to understand, evaluate and test the innovation before a regulatory outcome can be determined. Three (3) regulatory tools are used in the Framework namely, the Allow-and-See Approach, the Test-and-Learn Approach and the Regulatory Sandbox Approach.

7. **Digital transformation has been recognized in most of the national documents (Vision 2030, NDP5, HPP2, etc.) as an enabler to economic growth**. The Namibian Government's Vision 2030 document stipulates that ICT must be the most important sector in the economic development of the country by 2030. Similarly, the government has an ambitious Broadband Policy aiming to provide 95 percent population coverage by 2024[3]. The policy also aims to expand electricity supply infrastructure to rural areas to enable internet routers or modem devices to be switched-on around the clock. As such, Namibia implemented an Information, Communication and Technology Policy in 2004 which was later improved in 2008. Furthermore, the Ministry of Information and Communication Technology has indicated that the review of various information and communication technology policies and their possible consolidation into a uniform national ICT policy is on the cards.

8. **The main objective of this paper is to provide an overview on the digital transformation taking place in the Namibian economy by using four key pillars that are considered as fundamental requirements for a digital economy**. The paper will also look at the strengths and weaknesses in the various pillars. To achieve this objective, the rest of the paper is organised as follows; section 2 provides areas of assessment for an economy. Section 3 considers Namibia's telecommunications and network infrastructure while section 4 deals with digital platforms. Section 5 provides an analysis on digital financial services in Namibia followed by section 6 which looks at the regulatory environment. The paper concludes with section 7 and gives policy recommendations in section 8.

3 Government Notice No.189. Publication of National Broadband Policy: Communications Act, 2009.

ii. Assessment Areas

9. **The World Bank has developed areas of assessment which they use to determine the level of maturity of an economy**[4]. The table below (Table 1) shows the different levels of maturity of an economy, based on what is established in terms of ICT in the economy. It shows the different areas of advancement according to the World Bank, starting from the infancy stage (nascent) to the advanced stage.

Table 1: Areas of Assessment Based on Maturity of Economy

	Nascent	Growing	Advanced
Digital infrastructure	Access to undersea internet cables, backbone networks	Backbone networks, data clouds, IXPs, privacy, and cyber security	4G/5G networks, rural connectivity, internet of things
Digital platforms	Digital shared services, digital identity, and digital financial management	Digital government, open data, e-commerce	Mobile apps, AI applications, and software-enabled platforms
Digital Skills	Bootcamps and digital skills training	Business, management skill training	Digital-savvy workforce
Digital financial services	Basic digital payments, e.g. person-to-person payments	Broad digital payments, e.g. business-to-person, government-to-person	Digital financial services, e.g. savings, credit, insurance

Source: World Bank

10. **The World Bank Diagnostic Tool and Guidelines is used to analyse the Namibian economy based on its achievements thus far**. The assessments of the different pillars in the Namibian economy are guided by the World Bank Diagnostic Tool and Guidelines as shown in Table 1 above.

4 *Digital Economy for Africa – Diagnostic Tool and Guidelines*

iii. Digital Infrastructure

11. **Telecommunication services and network infrastructure are integral to digital transformation**. Sound communications and network infrastructure are key for Namibia to transition to a digital economy. The absence of reliable and secure high-speed networks and data centres in all corners of the country could lead to an incomplete digital transition. There is a need to increase the capacity of transmission networks and leverage investment in infrastructure to promote last-mile connectivity to underserved areas by mobilising blended finance (International Telecommunication Union, 2021). Access to broadband connectivity and digital infrastructure is a priority area for public institutions and private organisations in the field of digitalisation.

12. **Provision of electricity supply is equally important**. The entire digital ecosystem relies heavily on reliable, affordable electricity, from home internet connections to the base stations that underpin cellular networks to the data centers that store the internet's content. Therefore, a good telecommunication infrastructure without electricity becomes very ineffective.

a) Telecommunication Services in Namibia

13. **Namibia has three mobile network operators (MNO's) namely Mobile Telecommunication Company (MTC), Telecom Namibia and Paratus Telecommunications (Paratus)**. Until 2006, only MTC provided mobile network services in Namibia. The introduction of more MNO's means improved competition among the three providers which is ultimately beneficial for the Namibian economy. All three MNO's provide internet access and cellular network coverage across the country. While mobile penetration is well above the regional average, investments in LTE and fibre-optic has introduced faster broadband connections[5].

14. **There is, however, still insufficient competition which causes higher consumer prices and lower quality of service**. The sector remains highly concentrated with MTC and Telecom Namibia controlling 88 percent of the assets and 82 percent of the revenues in the market (CRAN, 2021). Moreover, MTC is dominant for mobile Telephony, while Telecom Namibia for fixed-lines and national data connectivity. The introduction of smaller broadband service providers such as Paratus and MTN Business Solutions Namibia (MTN) has, however, shifted the structure slightly. The combined revenue share of MTC and Telecom Namibia has declined slightly from 84 percent in 2018 to 2020 and cost of data has reduced slightly as well.

5 https://www.businesswire.com/news/home/20190819005433/en/Namibia-Telecoms-Mobile-and-Broadband-Statistics-and-Analyses-2019---ResearchAndMarkets.com

15. **The number of active SIM cards and mobile broadband subscribers has increased over the past 5 years**. Since 2015, the total number of active SIM cards rose by 14 percent to 2.9 million. These statistics represents the wide usage of mobile phones in the country. Mobile phones are largely considered the cornerstone in the drive towards financial inclusion and access to affordable financial services. Similarly, mobile broadband has increased by 24 percent indicating that more people are now using internet services in Namibia. Internet further allows users to access various public and private digital platforms which further drives the notion of digital transformation.

16. **Financial service providers have over the years taken advantage of the telecommunication services to provide financial products such as electronic money (e-money) and internet banking platforms to their customers**. However, there is insufficient ICT infrastructure as well as lack of electricity in certain parts of the country that could cause a divide between rural and urban users. The urban client may be sufficiently covered but not the rural. According to the Namibia Financial Inclusion Survey report of 2017, access to communications technology was at 80 percent for urban, while only a mere 20 percent of rural users had access to technology (there might have been significant changes in this regard due to the 081everyone campaign by MTC).

Table 2: Mobile Subscriber Numbers in 1000's

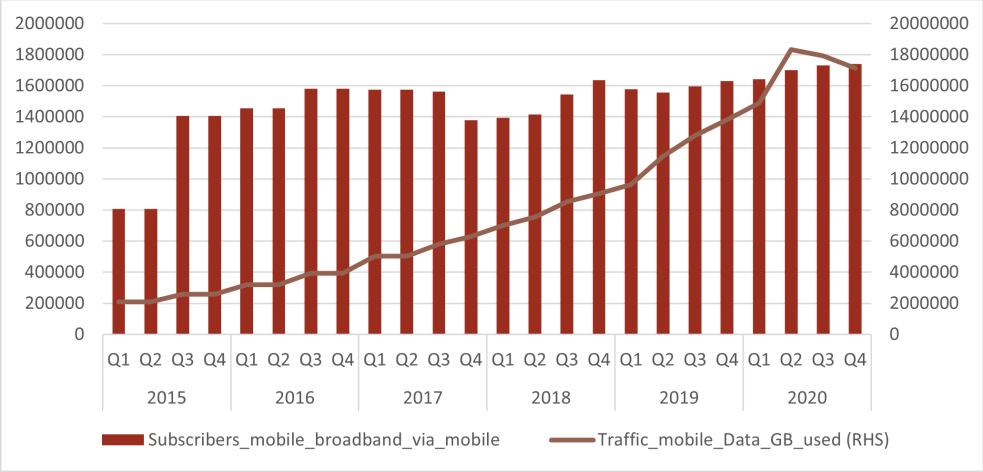
		2015	2016	2017	2018	2019	2020
Active SIM cards ('000)	Prepaid	2,370	2,470	2,485	2,566	2,628	2,702
	Postpaid	180	191	195	193	195	197
	Total	2,550	2,661	2,680	2,759	2,823	2,899
	Change %	-	4.4	0.7	2.9	2.3	2.7
Mobile Broadband ('000)	Mobile Phone	1,406	1,580	1,377	1,638	1,631	1,741
	Dongle/ Routers	37	31	36	32	22	26
	Total	1,443	1,611	1,413	1,670	1,653	1,767
	Change %	-	11.6	12.3	18.2	1.0	6.9

Source: CRAN

17. **Internet usage increased significantly over the years as seen in mobile broadband subscription and mobile data usage**. There are significant increases in data usage since 2015 as depicted in Figure 1 below. Although data from home use is not available due to the unlimited data provided, a clear increase is seen in the mobile data usage which increased to 17,132,656

Gigabyte (17,133 terabyte) in the fourth quarter of 2020 from below 4,000,000 Gigabyte (4,000 terabyte) in the first quarter in 2015. Mobile broadband subscription also increased over the years, with moderate increases over the last three years.

Figure 1: Mobile Broadband Subscription vs Mobile Traffic Data (GB) Used



Source: CRAN

b) Broadband Services in Namibia

18. **Access to the international submarine fibre optic cables has reduced costs of internet services in the country**. Although Namibia's internet and broadband sector is reasonably competitive, with six ISP's active, its development was for long held back by high prices for international bandwidth caused by the lack of a direct connection to international submarine fibre optic cables. This changed in 2011 when the West Africa Cable System (WACS) cable landed in the country. International cable services were launched in May 2012. Furthermore, operators invested in diversifying terrestrial access routes to adjacent countries[6].

19. **Additionally, Namibia will receive the Equiano cable, which is about 14 000km long, for increased internet bandwidth in the country**. The country is set to receive its second submarine fibre-optic internet cable in 2022 which promises to enhance the reliability of increased internet bandwidth for the country, and for the rest of Southern Africa. Like the WACS that landed at Swakopmund a decade ago, the new 'Equiano' cable is about 14 000km long and will span from Portugal to South Africa with nine branching units, of which one branch is Namibia, through Swakopmund.

6 *https://www.budde.com.au/Research/Namibia-Telecoms-Mobile-and-Broadband-Statistics-and-Analyses*

20. **The government has an ambitious Broadband Policy aiming to provide 95 percent population coverage by 2024**. This will be supported by the telecommunication companies (telcos) which continue to invest in their own extensive network objectives. Population coverage for Namibia stood at 89 percent by June 2021, compared to 78 percent in 2019, while 79 percent of the population was covered by 4G in June 2021 compared to 40 percent in 2019 (CRAN, 2021). The increase in coverage is mainly attributed to the 081everyone campaign by MTC which aims to cover the whole population. 5G services have been delayed, partly due to public concerns for the technology which caused the government to order an environmental assessment of 5G in mid-2020 while also requesting that the regulator speed up its 5G development strategy[7].

Table 3: Internet Subscribers

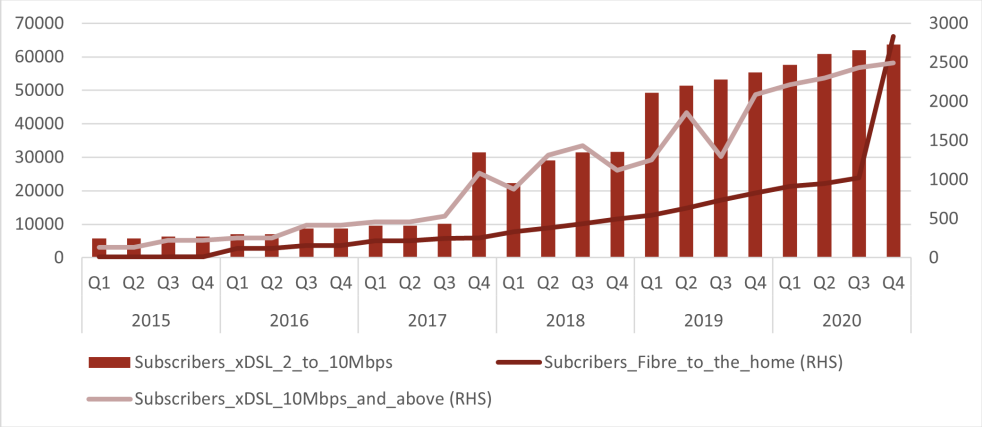
		2015	2016	2017	2018	2019	2020
ADSL	10Mbps and above	224	416	1,085	1,117	2,090	2,494
	2 to 10Mbps	6,307	8,706	31,489	31,586	55,314	63,696
	Below 2Mbps	39,660	44,259	21,950	21,311	3,272	2,234
	Total	46,191	53,381	54,524	54,014	60,676	68,424
	Change %		15.6	2.1	-0.9	12.3	12.8
Fibre to home		11	158	252	498	829	2,832
MetroNet (ethernet)		32	386	591	496	370	264
Leased lines		8,462	9,959	7,621	6,489	5,416	4,012
Other wireless		89	124	364	379	771	2347
Satellite / VSAT		354	354	542	960	881	759
VoIP		127	3,286	3,233	3,901	4,054	3,046

Source: CRAN

21. **Internet subscription increased over the years and increased further due to the COVID-19 pandemic**. The different internet options, experienced a sharp increase in subscriptions from 2019 to 2020, as seen in Figure 2. Fibre to home saw the biggest increase from 11 subscribers during 2015 to 2832 subscribers in 2020. This is because fibre is relatively new in Namibia and has only recently been offered for home use. Subscribers also moved to a faster internet connection with the new product offerings as the below 2 MBs product has become too small for today's use and application.

7 *https://developingtelecoms.com/telecom-business/market-reports-with-buddecom/10087-namibia-plans-privatisation of-namibia-telecom-and-mtc.html*

Figure 2: Mobile Broadband Subscription vs Mobile Traffic Data (GB) Used



Source: CRAN

c) Strengths and Weaknesses in Digital Infrastructure

Strengths/Opportunities

22. **The increased capacity from the Equiano cable will provide Namibia with the necessary redundancy as a connectivity backup**. The investment in the Equiano cable capacity means that service providers will be able to offer their clients international internet capacity, a much-needed diversified route, security of supply and unmatched quality of service (Qui, 2021).

Weaknesses/Challenges

23. **The low competition in the telecommunications and broadband services increases the risk of higher consumer prices and low-quality services**. The dominance of MTC in mobile telephony and Telecom Namibia for fixed-lines and national data connectivity causes a lack of competition in the telecommunications and broadband services. Despite the increase in the share of assets and revenues of smaller licensees, the high market concentration raises the concern of insufficient competition with higher consumer prices and lower quality of service as a result (CRAN, 2018). The lack of investors in the telecommunication and broadband services is one of the contributing factors to the low competition in the sector as ICT requires huge capital injection. Namibia's small population size also plays a role in the number of players that can enter the market.

24. **The Broadband policy also highlighted several weaknesses in infrastructure development, especially in the rural areas**. There is a lack of modern ICT infrastructure and limited internet access at public facilities in rural

areas. Furthermore, there is insufficient electricity in rural areas. There is also inadequate capacity (human and financial resources) to implement projects that may already have been formulated.

iv. Public and Private Digital Platforms/Services

25. **Digital platforms are heavily reliant on telecommunication services, electricity supply and network infrastructure to contribute towards a digital economy**. Digital transformation therefore entails modernizing service delivery mechanism and platforms to provide end users with better experiences and quality service. Government as an essential service provider would ideally benefit from digital transformation and the use of technology to provide most of its services (OECD, 2016). Essential services such as healthcare, education, trade, and other public services can all benefit from digital transformation. Moreover, in the private sector, online and mobile shopping platforms also known as e-commerce or mobile commerce continue to provide customers with alternative methods of shopping and making payments. The development of domestic Information Technology (IT) skills and capabilities can enable the country to become digital through the creation of affordable digital platforms that can serve both the public and private sector.

26. **The Government has for the past years embarked on a digitalisation journey to improve administrative processes and service delivery**. The third goal in the Harambee Prosperity Plan II (HPP2) is to improve performance and service delivery through various efforts, one of which is digitalization. HHP2 plans to accelerate the roll-out of key e-governance services at national and regional levels which include functional e-procurement, e-health, e-learning, e-business, social protection, and civil registration and identification systems. The below describes some of the public digital platforms introduced by Government over the years:

(a) Public Digital Services[8]

The one-stop-shop

27. **A portal, NamBizOne portal, which will give information to both foreign and domestic investors on establishing businesses in Namibia was developed and launched**. The project is a commitment to improve the ease of doing business in Namibia. It is a one-stop-shop gateway to doing business in Namibia. The one-stop-shop is already being jointly developed by Ministry of Industrialization and Trade, Ministry of Finance, City of Windhoek as well as the Social Security Commission. The project is at an advanced stage (about 90% complete).

8 *Please see a comprehensive list in Appendix A, Table 2.*

- **Stage 1**: Improving business engineering processes – 100% complete.
- **Stage 2**: Development of a virtual platform/portal (the interfacing of various systems) – project is delayed by 2 years due to budget constraints.
- **Stage 3**: Launch and maintenance – not started, depends on Stage 2.

e-Government Procurement (e-GP)

28. **The e-Government Procurement (E-GP) will be developed by the Office of the Prime Minister (OPM) as custodian of all government IT systems**. E-PG will be implemented in a phased approach, with the 1st phase to be assessed to determine the roll out of the remaining phases. E-GP - starting with a pilot implementation in a selected number of highly active procuring entities having ready ICT infrastructure. The e-GPS project will be executed in three (3) phases over at least two (2) years starting 01 April 2020. E-GP will replace the existing manual system of bid solicitation, evaluation, and contract management. The system should solve the current problem of absence of public procurement data with adequate data analytics providing useful information for the policy decisions and strategic actions. The Public Procurement Act 15 of 2015 that will allow the system to fully function is currently in the process of being amended. Staff members are also undergoing training for the new system.

Electronic Document and Records Management System (EDRMS)

29. **The EDRMS system involves the modernization of paper based and electronics records management practices to ensure compliance with the Archives Act**. Project objective is to ensure that a risk-free records and archival system is set up for use by the Public Service in an Information Communication Technology (ICT) environment in line with the eGovernment Policy directives and internationally recognized standards. EDRMS has been fully implemented in 13 Offices/Ministries/Agencies (OMAs), and partially implemented in 17 OMAs, while 7 OMAs are not yet on-board but have been trained and prepared to join. Despite this, very few staff are rolling out the system.

e-Health

30. **The Ministry of Health and Social Services introduced the Integrated Health Care Information Management System (IHCIMS) in 2011**. The IHCIMS, known as e-Health system, is web-based, and covers all aspects of hospital management and day-to-day operations of hospitals. Under the E-Health system, all patients will be allocated a unique Medical Health Record Number (MR Number), which can be used across 34 State hospitals in Namibia

and will eliminate the need for patients to carry medical passports or treatment records. The system should have replaced all manual procedures and systems in the hospitals, aiming for paperless hospitals. The ministry has decided to go for an off the shelf product and they are busy with the tendering process.

e-Education

31. **The higher education system has changed, accelerated mainly by the COVID-19 pandemic, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms**. The Namibian higher education sector has revised several programmes and benchmarked with regional/international industry and academic standards. The Namibia University of Science and Technology (NUST) has launched a strategic partnership with MTC through the High-Tech Transfer Plazza Select (HTTPS) initiative. HTTPS is a physical and virtual ecosystem for technological driven projects to accelerate innovation for the creative value chain and tap into the digital economy. The Inclusive and Collaborative Tech Innovation Hub (TechHub) is a project-based service-learning through augmented reality and virtual reality. The university also has hybrid programme offerings with predominant online teachings and a few face-to-face. Additionally, to increase skills in digital transformation, the taught plus thesis Master of Data Science degree is introduced to start in 2022. The university also offers Cyber Security courses for undergraduate and postgraduate studies. Ethical Hacking and Information Security, Python Programming for Machine Learning/Artificial Intelligence and Big Data Technologies can be obtained from the India - Namibia Centre of Excellence in Information Technology at NUST.

32. **The University of Namibia (UNAM) has also fully embraced e-learning as it has switched its programme offerings to online with very limited face-to-face classes for a few professional programmes for both 2020 and 2021**. The university also provided e-learning devices to its students. The University increased its provision of existing data and data devices to all staff and students. In 2021, UNAM upgraded its IT infrastructure to a Hyper Convergence Infrastructure to improve online offerings. Online learning tools include a variety of applications such as Moodle, Big Blue Button, an own developed Panopto Software platform, ITS, and other online platforms. The University uses both licensed Zoom and MS Teams from Microsoft 365 for virtual interactions and online learning. In addition to the formal degree programmes in Computer Science, Information Technology, Information Systems, etc. and related fields at Bachelors, Masters and PhD levels, UNAM offers a wide variety to technology and ICT opportunities. A Masters in Cyber security is also offered. The University has a Virtual Institute for Scientific Computing and Artificial Intelligence and has two supercomputers in its High-

Performance Computing Centre for big data and data analytics of its big data sources from the High Energy Stereoscopic System (HESS) which are gamma ray telescopes used for astronomy. UNAM concluded an MOU with the Africa Blockchain Institute (ABI) to introduce a MSc: Blockchain Technology as well as several short courses in blockchain technology. UNAM also has an tech innovation incubator where 4 AI in Agriculture innovators sponsored and partnered with Google as well as 5 tech innovators under the Chancellors Innovation Fund and sponsored by Telecom and UNDP are being incubated.

33. **Basic education in the country, however, still has a long way to do, mainly due a lack of funds in the ministry**. Although the ministry has provided a few e-learning materials to different schools, due to a lack of funds in the ministry, even for basic textbooks (1 to 1 ratio), therefore, remote teaching and e-learning is still a pipedream. Most pupils do not have access to good ICT infrastructure, electricity and/or the tools needed to perform their work remotely.

34. **The Namibia students' financial assistance fund (NSFAF) has also embraced e-learning as they have rolled out laptops and internet devices to students**. The NSFAF, through the Ministry of Higher Education, Technology & Innovation, has purchased laptops and internet devices to provide students with the necessary equipment for e-learning. A total of 10,500 laptops were received in October for university students, both NSFAF beneficiaries, as well as private students. The Telecom internet devices were given earlier.

Civil Registration and Identification

35. **All vital events were registered in physical civil registries (e.g., births, deaths, etc.) and handwritten certificates (birth, death, marriages, etc.) were issued for each**. Over time, government has moved to digitalizing the process. Automated Fingerprint ID System (AFIS) was introduced in 2004 for enrolling of 10x fingerprints and to provide fingerprint search and verification functionalities. Electronic National Population Registration System (eNPRS) is a system which will improve the efficiency, traceability and accountability of the civil registration and identity processes. The government aims to establish a sustainable, cost effective, stakeholder focused world class integrated National Identity Management System to strengthen Civil Registration, Civil Identification, Population Management, and Vital Statistics in Namibia by 2022.

e-Birth Notification of Children Born at Health Facilities

36. **This system will allow for the notification of births to ensure that births are registered in the acceptable time**. The e-Birth Notification System was awarded the prestige Radiant Launch Award by the Association of Professional

Social Compliance Auditors (APSCA) for providing the most significant developments in the area of public sector identity schemes, applications and services in 2018. The system was launched last year 2017, however, financial support is required to rollout to all health facilities including private hospitals.

e-Death Notification System

37. **This system will allow for the notification of death to ensure that deaths are registered in the acceptable time and to avoid fraudulent activities in the death process**. The system has been launched and is available at the Ministry of Health and Social Services (MoHSS) Hospital (Katutura & Windhoek Central) and Mortuaries of MoHSS. Financial support is needed to rollout the system to all mortuaries and health facilities.

ITAS Tax System

38. **The Integrated Tax Administration System (ITAS) was introduced to improve service delivery for taxpayers**. ITAS is an online system that provides taxpayers with 24/7 access to their tax accounts to execute various self-services such as new tax registration, filling tax returns, applying for tax refunds as well as reporting tax crimes amongst other. ITAS reduces manual tax administration processes for both the government and taxpayers by offering the convenience of executing all tax related matters on the digital platform. The system is currently being administered by the newly created Namibia Revenue Agency which is the tax collecting authority. The system is fully functional, however there is a lack of IT staff to manage and support the system as well as establishing interoperability with third party systems. Another challenge is the lack of adoption of e-filing by citizens and businesses.

ASYCUDA

39. **ASYCUDA is a computerized customs management system which covers most foreign trade procedures**. The system handles manifests and customs declarations, accounting procedures, and warehousing manifest and suspense procedures. The ASYCUDA programme is planned in consultation with the Customs authority and related government agencies taking into consideration the particular trader and transport operator environment. The ASYCUDA programme is directed at reforming the customs clearance process. It aims at speeding up customs clearance through the introduction of computerization and simplification of procedures and thus minimizing administrative costs to the business community and the economies of countries. The system is fully operational in all regions.

Namibia Integrated Employment Information System (NIEIS)

40. **NIEIS is a system initiated by the Ministry of Labour, to collect, store and update information of job seekers**. The system stores names, qualifications and occupations of job seekers; vacancies in the labour market; specialized skills and qualifications possessed by Namibian citizens and permanent residents and employers in Namibia. The main purpose of the system is to register job seekers, vacancies in the public and private sector and assist job-seekers in finding suitable employment. On the same system, companies are able to upload opportunities, namely; vacancies, tenders and grants. Companies can also apply on the system for tenders offered by other companies directly online and the system enables the employers to match the job seekers to available opportunities on the system. Registered job seekers are able to manage their online resume, search and apply for available opportunities online and have their online resume permanently stored and available for viewing by employers.

(b) Private Digital Platforms

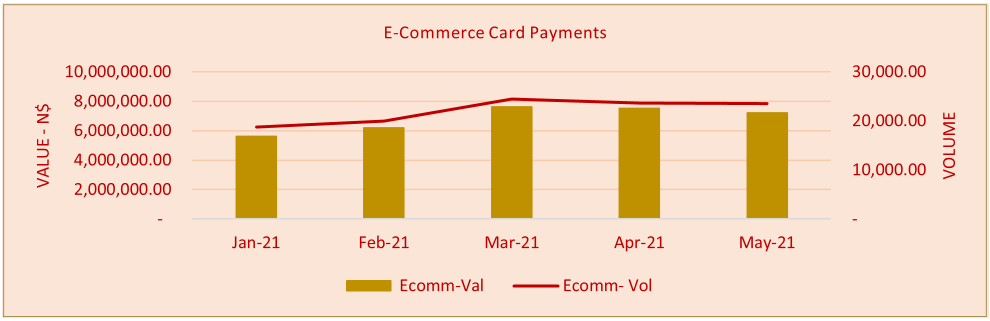
41. **The adoption of digital platforms by private entities are equally important for digital transformation in the economy**. Digital platforms eliminate manual and cumbersome processes for both businesses and consumers. Various corporates in Namibia (refer to table 3) have gone digital to serve their client base for convenience, faster service and better experience in accessing products and services. Most companies now have websites and mobile applications providing customers with easier access to their services.

42. **E-commerce and digital payment platforms are on the rise in Namibia**. As of May 2021, four (4) banks[9] together and two (2) payment gateway service providers[10] provide e-commerce capabilities to 442 e-commerce merchants in Namibia. These merchants can now sell their goods and services online through websites and mobile applications and conveniently receive online card payments. While e-commerce merchants are increasing sales and reaching a wider customer base through online shops, it has now also become more convenient for cardholders to make card-not-present payments on websites and through mobile phone applications (Bank of Namibia, 2020). E-commerce platforms afford consumers the convenience of shopping and making payment online without entering a physical store. E-commerce merchants equally benefit because they are able to reach a wider customer base and also receive payments from anywhere in the world.

9 First National Bank, Bank Windhoek, Nedbank, and Standard Bank
10 Direct Pay Online and Wire Card Namibia

43. **The graph below depicts the volumes and values of e-commerce payments from January 2021 to May 2021**. e-Commerce monthly transactions volumes were on average 22,057 with an average value of N$6.8 million during the first 5 months of 2021.

Figure 3: e-Commerce Card Payments



Source: Bank of Namibia

44. **The Table below provides and describes some of the private digital platforms available in Namibia**. Not all digital platforms have integrated payment systems to enable customers to pay online. In most cases, customers are required to use alternate means of payments such as using EFT, e-money or even cash upon delivery of the services. Complete digital transformation would require all digital platforms with business offerings to provide payment options to complete online service experience.

Table 4: Example of Private/Commercial Digital Platforms in Namibia

Private/Commercial Digital Platform	Description of Business Offering	Integrated Payment System
MTC	Mobile Network Services	No
Namib Wear	Clothing Shop	No
Donlua Africa	Namibian Music Sales	Yes
LEFA	Ride-Haling	No
Exclusive Africa	Tour Operator	Yes
Buddy Mobile Payment Application	Online Marketplace	Yes
PayToday Mobile Application	Tickets, Accomodation And PSP & P2B Payment Services	Yes

Source: Bank of Namibia

(c) Strengths and Weaknesses in Digital Platforms/Services

Strengths/Opportunities

45. **Digital platforms can serve people, businesses, and government agencies in all aspects of life, including in healthcare, education, commerce, transportation, and other public benefits**. For the value of these platforms to be maximized, they must be able to share critical information through an interoperability framework. Assessing the enabling environment for the further development of platforms is critical to the overall understanding of digital economy in Namibia.

Weaknesses/Challenges

46. **Several challenges cited by the Government as obstacles in the effective implementation of e-Governance**. The Government cited the below as some of challenges faced in the implementation of e-Governance:
    - Redefining rules and procedures
    - Legal issues (lack of e-law)
    - Infrastructure (telecommunication and electricity)
    - Access to right information
    - Lack of trained human resources
    - Lack of ICT penetration in remote areas
    - Standardization and inter-operability

v. Digital Financial Services

47. **Digital Financial Services (DFS) are a critical pillar in transitioning towards a digital economy**. DFS are financial services such as payments, banking, credit, remittances, savings, securities, investments and insurance delivered through digital technologies and channels (World Bank, 2020). Digital financial services are mainly provided by banks and non-banking financial institutions. Financial services offered through digital means tend to be cheaper and more convenient for the users. DFS has been proven in various countries as a vehicle to drive financial inclusion. Creating access to financial services to the unbanked and underbanked population through digital means increases economic activity as well as the realization of a digital economy. Government as a key service provider in the economy can leverage DFS to enhance revenue collection and government spending with more speed and efficiency.

48. **DFS in Namibia can be assessed from a banking and non-banking perspective**. Banks compete with non-bank financial institutions and FinTech companies in the provision of digital financial services. While the services are the same in most cases, the competition usually comes down to who can provide the financial service at a lower cost as well as access channels/points/platforms. In many cases, FinTech entities do

not have to carry high regulatory and compliance costs that are incurred by banks and non-bank financial institutions (NBFIs) and are therefore in a better position to provide the same services at a lower cost. Additionally, FinTech companies are equally not bogged down by cumbersome legacy systems. They can easily scale their products, what is necessary for them to flourish and further take advantage in the provision of appropriate and innovative financial products is the access to Data.

Box article

Regulators:
The two main regulators in the financial sector are the Bank of Namibia and the Namibia Financial Institutions Supervisory Authority (NAMFISA).

Banks:
The banking sector in Namibia consists of four big banks (First National Bank, Standard Bank, NedBank, and Bank Windhoek) and four smaller banks; namely, Trustco Bank Namibia; Letshego Bank Namibia; Bank BIC Namibia Limited and Banco Privado Atlántico Namibia.

Non-bank financial institutions (NBFIs):
Namibia Post Limited, Virtual Technology Service and Nam-mic Payment Solutions.

Automated Clearing House:
NamClear is responsible for clearing financial transactions between banks through the card and EFT streams.

Real Time Gross Settlement System:
The Namibia Interbank Settlement System (NISS) is responsible for settling financial transactions between banks.

Mobile Network Operators (MNO's):
MNO's, namely MTC and TN Mobile facilitate wallet-based transactions and transfers through mobile wallets.

(a) Banking

49. **The Namibian financial sector has grown since independence**. The banking sector increased from four banks since the 90's to eight banks in 2021. The non-bank financial institutions have also grown over the years challenging the conventional banking models and providing competition in the provision of financial services. A lot of digital innovation has taken place in the banking sector, specifically (Bank of Namibia, 2020). The move towards providing financial services through digital platforms i.e. web applications, mobile applications and digital wallets have revolutionized public access to financial services. Compared to the 90's and early 2000's, the four big banks now offer online banking, mobile banking, and wallet services.

50. **The use of electronic payment methods has been increasing over the years in Namibia**. Payment cards remain the most used electronic payment method for retail transactions followed by electronic funds transfer (EFT) and e-money. Card payments are prominent on e-commerce platforms and point of sale (POS) devices at merchants. EFT payments remain integral in the National Payment System, mainly for corporate payments, debit orders and high value credit transfers. Electronic money in Namibia which is issued by both banks and non-banks has seen considerable growth over the years. Cheque as a payment instrument was discontinued in 2019 owing to the decline in usage and the cost of maintaining the cheque processing infrastructure.

51. **A lot of digital innovation has taken place in the payments space**. The emergence of payment service providers to provide payment services to banks, merchants and consumers have provided users alternate options of accessing financial services. Mobile applications such as PayToday and Buddy provide alternate ways of making payments and sending money. Gateway payment service providers such as DPO and WireCard provide merchants the ability to accept online payments. Banks such as Standard Bank and Nedbank have acquired their own gateways to enable e-commerce merchants. All this has led to a considerable number of e-commerce platforms in Namibia, mainly in the tourism and hospitality sector.

52. **From a banking perspective, numerous financial innovations have been embraced over the year, such as**:
    - Chip and pin on bank payment cards replacing magstripe;
    - The Tap and Pay functionality;
    - Card-less withdrawals at ATM's;
    - Cash back services at Merchants;
    - The ability to deposit at ATM's;
    - Cash withdrawals at retail outlets;
    - 2 factor authentication at e-commerce platforms;
    - Tokenization and QR Codes.

(b) Payment Systems Infrastructure

53. **Prior to independence, Namibia depended heavily on South Africa's payment infrastructure for clearing and settlement of most payment instrument including card transactions**. The dependency on South Africa made Namibia's financial system vulnerable to risks that would affect South Africa's payment system and placed oversight functions of critical payment system infrastructure in the hands of the South African regulators. The Bankers Association of Namibia (BAN) representing all commercial banks in Namibia and delegated by the Bank of Namibia initiated a National Payment Reform Project (Reform Project), which was launched in 2001, whereby key objectives were identified to disconnect the inter-bank transactions from the South African National Payment System and to address the above-mentioned dependencies and vulnerabilities[11].

11 *https://www.sadcbankers.org/subcommittees/PaySystem/media/Documents/Newsletters/Vulindlela_Oct2010/Namibia_article.pdf*

54. **Given the Reform Project objectives, Namibia achieved key milestones in revolutionising the domestic financial sector**. Starting with the implementation of the Real-Time Gross Settlement System (RTGS) referred to as the Namibia Inter-Bank Settlement System (NISS) in 2002; the promulgation of the Payment System Management Act, 2003 (Act No.18 of 2003) as amended (the PSM Act); the establishment of NamClear Limited (the domestic clearing house) in 2003; the Electronic Fund Transfer System (EFT) in 2004; the Cheque Processing System (CPS) in 2005; the establishment of the Payments Association of Namibia (PAN) in 2005 and the domestic card switch (Namswitch) in 2008, inter alia[12]. The highlighted milestones significantly assisted with separating Namibia's NPS from that of South Africa.

55. **FinTech services in Namibia are predominantly provided in the payment space**. The payment system landscape has undergone significant transformation over the past years. Banks and non-banks have invested substantially in FinTech to provide interoperable payment services and seamless integrations with payment service providers through APIs. The introduction of mobile payment applications such as PayPulse, PayToday and Buddy allow users to make P2P (Peer to Peer) and Person-to-Business (P2B) payments without requiring the recipients bank account or mobile number (Bank of Namibia, 2021). The implementation of contactless payments or QR codes by some banks have shown that traditional financial institutions are embracing FinTech innovations to remain relevant in the payments sphere. Similarly, cloud computing services are used for administrative functions like email services, since data is deemed less risky for cloud storage.

56. **A Central Securities Depository (CSD) system is a key component of a modern financial infrastructure**. A CSD is a specialized financial organization holding securities such as shares, government stocks, etc., either in certificated or uncertificated (dematerialized) form so that ownership can easily be traced and transferred through a book entry, rather than the transfer of physical certificates. Applied to government securities, such a book-entry system, it becomes an important tool in the hands of the central bank to administer the issuing of government securities and central bank instruments and to support credit extension in the RTGS against eligible collateral the management of securities. The establishment of a single national Central Securities Depository (CSD) is a vision embodied in the Namibia Financial Sector Strategy (NFSS), which seeks to reform the financial system to attract investors into the Namibian economy and to have an active capital market characterized by higher turnover, liquidity and immediacy. Provisions for regulation of the CSD is in the recently Promulgated Financial Institutions and Markets Act, 2021. Equally important is the Government's drive to encourage the development of modern national financial market infrastructures in line with the nation's vision 2030 aspirations.

12 *https://www.bon.com.na/CMSTemplates/Bon/Files/bon.com.na/9d/9d223e59-9e94-4f94-8c20-44b11ce4bb2b.pdf*

(c) Non-Bank Financial Institutions

57. The number of non-bank financial institutions in the financial sector has risen and more digital financial services are now accessible in the space of credit, insurance, investments etc. The scale and scope of digitization in Namibia is significant in certain types of technology, such as distributed ledger technology, big data, internet of things, artificial intelligence and biometric technology.

Table 5: Types of Digital Technology used by NBFI's

Non-Bank Financial Institute	Type of Digital Technology	Uses of Digital Technology
Capital Markets	Cloud Computing	For effective and efficient processing and storage of data. For advisory and agency services planning, investment and trading, financial market, cyber security and communication.
Insurance	Cloud Computing	For effective and efficient processing and storage data.
	Artificial Intelligence	Interpretation of historical data for easy of communicating to existing clients.
	Distributed Ledger Technology	Creation, secured transfer and storage of policyholder information.
	Internet of Things (IoT)	Capturing information of movable objects in the physical world.
Pension	Distributed ledger technology, big data, internet of things, cloud computing, biometric technology	For pension funds, payment services, investment and trading and operations.
Microlending	Distributed Ledger Technology, big data, internet of things, artificial intelligence and biometric technology	Lending and funding, credit, operations and communications.
	Robotics Technology	For payment services, lending and funding and operations.
	3rd Party Avril Payment Solution	For credit.

Source: NAMFISA

(d) Strengths and Weaknesses in Digital Financial Services

Strengths/Opportunities

58. **FinTech innovations such as crowd-funding, P2P lending, amongst others, are not yet prevalent in Namibia**. An enabling regulatory environment to foster more FinTech services is needed for the financial sector and the economy to realize the FinTech benefits. The Bank's efforts of recently introducing a FinTech Regulatory Framework will greatly assist with attracting FinTech innovations.

Weaknesses/Challenges

59. **One of the biggest problems with Namibia's e-money service is the lack of interoperability as the e-money service remains closed-loop**. This limits users to specific money issuers and schemes and does not provide flexibility and options to users. Due to the limited options, users are at times left with no choice but to travel long distances. This contributes to exclusion as the cost of accessing such service providers are high.

60. **The costs involved in the FinTech applications in Namibia are high**. The costs of doing business in Namibia remains high as it requires a lot of time and money for new businesses to setup in Namibia. Innovators invest a lot of money in building applications and would therefore expect healthy returns on their investment. This may lead to situations whereby much needed FinTech solutions are not deployed in Namibia caused by low value propositions to the innovators due to scalability and low volumes that might actually use the innovation. Venture capitalism and crowdfunding are some of the practical solutions that can resolve challenges that face innovators in developing much needed applications but are concerned from a commercial perspective.

vi. Regulatory And Policy Environment

61. **The Namibian communications sector is governed by the Communications Act, 2009 (Act No. 8, 2009)**. The Act provides for the regulation of telecommunications services and networks, broadcasting, postal services and the use and allocation of radio spectrum. An independent Communications Regulatory Authority of Namibia (CRAN) was established for this purpose and to make provision for its powers and functions; the granting of special rights to telecommunications licensees; the creation of an Association to manage the .na internet domain name space and for matters connected therewith. The Act was further amended to the Communications Amendment Act, 2020 (Act No. 6, 2020). The proposed amendments aim to address the key provisions as listed below:

- To improve the effectiveness of the regulatory framework;
- To improve the operational efficiency of CRAN;
- To deal with Regulatory offences
- To foster a more effective and efficient enforcement framework; and
- To remove provisions that are no longer necessary.

The Electronic Transactions Act 4 of 2019, was also introduced to provide for a general framework for the promotion of the use of electronic transactions in the country. The act is further aimed to provide for the legal recognition of electronic transactions; to provide for the admission of electronic evidence; to provide for consumer protection in electronic commerce; as well as to regulate the liability of service providers for actions of their clients and to provide for matters of incidental thereto.

(a) The Role of The Central Bank

62. **The changing world and particularly digitization within financial services, requires the central bank and other regulators to rethink and restructure their approaches to regulation**. Central banks now more than ever are expected to encourage innovation, drive efficiency, adopt new technologies and agile operating models, drive the workforce of the future, whilst still providing uncompromised regulatory services. Central banks play a pivotal role in maintaining the safety and integrity of the payment system (BIS, 2020). They provide the solid foundation by acting as guardians of the stability of money and payments. The pandemic and resulting strain on economic activity around the world have confirmed the importance of central banks in payments. Central banks are embracing this innovation as they promote interoperability, support competition and innovation, and operate public infrastructures. This are all essential for easily accessible, low-cost, and high-quality payment services (BIS, 2020).

63. **The Bank of Namibia is a prudential regulator in three main areas namely, Banking, Payment Systems and Exchange Control**. Recently, the Bank of Namibia also added Credit Bureaus to its regulatory Framework. The Bank of Namibia therefore has 3 prudential regulators in the form of Banking Supervision Department, Payment and Settlement System Department and EXCON and Legal Services Department. The Bank of Namibia Act, 2020 (Act No. 1 of 2020) empowers the Bank of Namibia, to serve as the State's principal instrument to control money supply, currency and institutions of finance in Namibia. The act further empowers the Bank to provide for the functions of the central bank and to provide for its management; to regulate the issue of banknotes and coins; to provide for matters relating to banking, currencies and monetary policy; to manage foreign exchange reserves; to promote financial stability; and to provide for incidental matters.

64. **The Bank of Namibia as a regulator has laws and regulations that enable banks and non-bank to provide digital financial services**. The Banking Institutions Act of 1998 (Act No. 2 of 1998), as amended, enables the Bank of Namibia to authorise banking institutions to conduct banking business which includes providing merchant accounts and financial services to entities in Namibia (Bank of Namibia, 2020). The Payment System Management Act of 2003 (Act No.18 of 2003), as amended (the PSM Act), enables authorised banks and non-banks to provide payment services and issue payment instruments in Namibia. In order for digital transformation to flourish in Namibia, laws and regulations applied to banks should be flexible enough to accommodate the digital agendas of banks. The regulator should therefore find a balance between effective regulation and creating an enabling environment for innovation to prosper. Another key financial sector regulator is the Financial Intelligence Centre (FIC) for Anti-Money laundering (AML) and Countering the Financing of Terrorism (CTF) regulations.

65. **NAMFISA as a regulator also has laws and regulations to ensure that the non-bank financial sector is digitally transformed**. NAMFISA is responsible for regulating capital markets, the insurance sector, pension funds and microlending as empowered by the Namibia Financial Institutions Supervisory Authority Act, 2001 (Act No. 3 of 2001) and amended in 2021. Ensuring that all these sectors have some form of digital platforms, will assist the transition to a digital economy. The recently launched Financial Institutions and Markets Act, 2021 (Act No. 2, 2021) enables NAMFISA to consolidate and harmonise the laws regulating financial institutions, financial intermediaries and financial markets in Namibia; and to provide for incidental matters.

(b) The Digital Policy

66. **A well-defined policy direction and the ability to design national strategies and execute them are key to developing an enabling environment for the digital economy**. The Namibian Government's Vision 2030 document stipulates that ICT must be the most important sector in the economic development of the country by 2030. An Information, Communication and Technology Policy was implemented in 2004 which was later improved in 2008.

67. **An eight-member task force to assist the government in preparing for the Fourth Industrial Revolution (4IR) was appointed in July 2021**. President Hage Geingob appointed an 8-member task force which will conduct a country assessment to determine the readiness of Namibia for 4IR and make recommendations towards a co-ordinated and coherent policy and legislative framework. The 4IR task force is currently in the process of drafting a National Digital Strategy for the Republic of Namibia, which is at an advanced. Some groundwork was done in 2019 and a Concept Note was drafted which was approved by Cabinet in 2020.

68. **The current National Policy on Research, Science and Technology (NRST) was adopted in 1999 and contains explicit policy measures for the promotion and governing of scientific and technological development**. The NRST Policy of 1999 led to the promulgation of the Research, Science and Technology Act, 2004 (Act No. 23 of 2004) and the establishment of the National Commission on Research, Science and Technology (NCRST). The 1999 NRST Policy initiated (1) developments such as improved coordination, monitoring and supervision of research activities in the country; (2) the development of a national research programme which sets out priority research areas for Namibia; (3) institutional and human capacity development, and (4) dedicated funding for research, science and technology application and development in Namibia.

69. **The approval of the digital strategy by Cabinet has propelled Namibia to becoming an informed society with a knowledge-based economy**. The Ministry of Information and Communication Technology has indicated that the review of various information and communication technology policies and their possible consolidation into a uniform national ICT policy is on the cards, such as the Electronic Transaction and Cyber-Crime Act (Bill), that will deal directly with cybercrime, cybersecurity, or data privacy.

(c) Strengths and Weaknesses in the Regulatory and Policy Environment

Strengths/Opportunities

70. **There might be uncertainties and unpredictabilities of the regulatory landscape**. Over the coming decades, deep structural economic change is inevitable in Namibia, whether due to endogenous or exogenous influences. Regulators must confront, rather than shy away from, the complexity enshrined in the digital future.

71. **The central bank, from the perspective of banking supervision and financial stability must keep an eye on the developments in digital transformation and the potential risks they may create**. The Bank of Namibia has an opportunity to get ahead of digital transformation and ensure that risks are mitigated before they happen to effectivity fulfil its mandate.

Weaknesses/Challenges

72. **A notable challenge is the lack of a level playing field between regulated and non-regulated entities in the provision of financial services**. Non-regulated entities have a huge cost advantage above regulated entities. Regulated entities are also at times restricted in terms of what they can offer, which limits their innovation and competitive edge.

73. The research, science, technology and innovation sector is confronted with various challenges:

i) Limited scientific and technological human and institutional capacity;
ii) Limited investment in Research and Development (R&D);
iii) Limited private sector/industry participation in R&D;
iv) A weak entrepreneurial and innovation culture;
v) Weak linkages between universities, Research & Development (R&D) institutes and industry; and a
vi) Lack of a well-defined information management system and a lack reliable statistics and STI indicators.

vii. Conclusion

74. **Based on the above assessment, Namibia has made great strides in digital transformation, especially in the banking and non-bank financial services**. The banking and financial institutions have made significant improvements in the digital spheres and have largely moved from cash transactions to more cashless transactions. Digitization is impressive in the non-banking sector, with the use of distributed ledger technology, internet of things, artificial intelligence and biometric technology to support operations and communications for lending and funding purposes.

75. **Digital infrastructure has also been improving with more and more towers set up in the country**. The country's access to the WACS cable puts the country at an advanced level of digital infrastructure. The expected second submarine fibre-optic internet cable in 2022, will further enhance the reliability of increased internet bandwidth for the country. High-quality and affordable broadband internet is a key foundation of the digital economy. It contributes to enhancing productivity, facilitating information exchange, and improving service delivery across economies. However, the lack of sufficient ICT infrastructure and electricity supply in rural areas will need to be addressed to eliminate inequalities between rural and urban areas.

76. **The country still has room for advancement in the digital platforms pillar**. Although the use of various mobile apps, AI applications, software-enabled platforms as well as e-commerce platforms in the country has a foothold, a lot still has to be done as e-commerce merchants and open data in the country are still at a lower level. Moreover, manual processes and the heavy reliance of cash to move goods and services creates a huge challenge towards aspirations of a digital economy. Furthermore, weaknesses raised in the various pillars need to be addressed.

viii. Policy Recommendations

77. **Namibia needs to expedite its digital platforms according to the aspirations of HPP2**. Digital technology offers potential for enhanced efficiency, transparency, and service delivery in the public sector, but the government's efforts in this field appear fragmented and slow moving. Some digital platforms implemented more than a decade ago are still not fully functional. There should be concerted efforts by the government to increase digitisation through clear and deliberate strategic objectives. Funds should be set aside targeted towards ICT development as most government projects have been halted due to a lack of funds.

78. **Expedite regulatory reforms necessary to fast-track digital transformation**. There is a need for laws to be amended and policies to be in place to ensure digital transformation in the country. It is thus important that the relevant policymakers ensure that these laws be promulgated in the short-to-medium term and the required policies be drafted and adopted accordingly.

79. **Promote infrastructure sharing to avoid the multiplicity of initiatives and redundancies in the deployment of infrastructure**. The Communications Act, 2009 (Act No. 8 of 2009) as amended in 2020, allows for infrastructure sharing in a non-discriminatory and allows for bilateral negotiations between the institutions. This means that more focused infrastructure sharing will enable further access as well as enable operators to focus on the competition in the service layer regardless of the extent of the sharing. Operators can share whole or strategically unimportant parts of its infrastructure to share infrastructure costs while providing acceptable performance. Furthermore, these savings can facilitate mobile operators' migration to next-generation technologies and provide its customers with the latest technology available.

80. **Strengthening infrastructure in ICT and electricity in rural areas to ensure digitalization is countrywide**. Intensive efforts must be made to ensure efficient electrification in the whole country. Furthermore, access to ICT connection should penetrate the whole country.

81. **Increase scientific and technological human and institutional capacity**. Namibia will not realize the full benefits of digital transformation, unless it ensures that learners going through the school system are equipped with foundational numeracy and literacy skills. There is also a need for overall digital literacy in the country.

82. **Access to affordable financial services is critical for poverty reduction and economic growth**. Countries with deeper, more developed financial systems enjoy higher economic growth and larger reductions in poverty and income inequality. Access to financial services also increases opportunities and resilience for the poor, particularly women and people in the rural areas.

83. There is a need to accelerate data-sharing and drive business growth. Data sharing, data exchanges, and data ecosystems are an essential goal for advancing in digital transformation. It is therefore essential that as a country we look at data-sharing.

84. The paper tried to mirror similar studies that have been done by the World Bank on various countries. The World Bank paper is extensive and provides great insights to the countries analyzed. This paper, however, could only look at the pillars on a high level due to its nature and it would be beneficial to invite the World Bank to do a similar study for Namibia.

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Annexure

Figure 1: The Evolution of Payment Systems Over the Years in Namibia

Source: Bank of Namibia

Table 1: Population Coverage in Namibia

	Population Coverage %				Not Covered				Total Fibre
Region	**2G**	**3G**	**4G**	**Broad-band**	**2G**	**3G**	**4G**	**Broad-band**	
Kunene	66	50	33	50	36,817	54,792	73,110	54,400	821
Omusati	99	97	82	97	1,865	9,069	48,504	7,479	384
Oshana	100	99	96	99	108	1,501	7,533	1,099	207
Ohangwena	99	94	90	96	2,298	17,305	26,486	12,260	199
Oshikoto	99	86	73	89	2,887	30,195	57,636	24,328	645
Kavango East	97	90	69	91	4,622	15,526	50,734	15,373	711
Zambezi	100	94	60	95	191	5,919	41,985	4,877	498
Erongo	98	96	92	96	4,461	9,671	17,616	9,640	2,164
Otjozondjupa	94	84	72	85	9,551	26,569	45,866	25,062	1,837
Omaheke	88	66	48	66	9,309	27,247	41,581	26,816	1,354
Khomas	99	97	96	98	6,826	12,142	17,447	11,545	1,904
Hardap	87	80	72	80	12,364	19,385	26,711	18,760	2,372

Region	Population Coverage %				Not Covered				Total Fibre
	2G	3G	4G	Broad-band	2G	3G	4G	Broad-band	
!Karas	89	83	73	83	9,912	15,252	24,113	14,943	3,044
Kavango West	94	74	40	77	5,818	23,724	55,271	21,518	385
Namibia	96	89	79	90	107,029	268,297	534,593	248,100	16,525

Source: CRAN

Table 2: Government Services

Service	Use	Status
e-Government Procurement	EGP will replace the existing manual system of bid solicitation, evaluation, and contract management.	In the process of amending the act. Training needed for staff.
Electronic Document and Records Management System	Modernization of paper based and electronics records management practices to ensure compliance with the Archives Act.	Very few staff that are rolling out the system.
Integrated Health Care Information Management System	Known as E-Health system, is web-based, and covers all aspects of hospital management and day-to-day operations of hospitals.	The Ministry is busy with the tendering process.
Civil registration and identification	All vital events were registered in physical civil registries (e.g., births, deaths) and handwritten certificates (birth, death, marriages, etc.) were issued for each.	E-death launched and used at Central and Katutura hospitals and at Mortuaries.
ITAS Tax System	ITAS is an online system that provides taxpayers with 24/7 access to their tax accounts to execute various self-services such as new tax registration, filling tax returns, applying for tax refunds as well as reporting tax crimes amongst other.	Fully functional system.
ASYCUDA	ASYCUDA is a computerised customs management system which covers most foreign trade procedures.	Fully functional system.

Service	Use	Status
e-Justice system	This is an electronic platform for filling, case management, and diarizing of court document within the ligation process.	The system is fully operational.
Forestry Produce Harvesting and Transport Permits Management System	The system for managing Forestry Produce Harvesting and Transport permits was completed and piloting is in progress.	The system will be delivered within this financial year, 2018/2019.
Online Grade 10 and Grade 12 Candidates registration for Examination in selected secondary schools:	The system was developed and implemented. Staff have been trained. User Acceptance testing and piloting training was done. Grade 10 and 12 exam registration training conducted in 17 schools in !Karas Region 26 September – 10 October 2017.	Other regions will be trained during 2018-2019 financial year.
Child Welfare Database System	The system is used to capture and store data about vulnerable children and gender base violence incidents related to children.	The system is operational.
Online Visa and Permits Application	Business Process Re-engineering (BPR) was completed. The system has been developed and installed. However, the system requires extra interfacing modules to be developed which will enable the system to interface with the public, this requires extra funds which is not available.	The ministry requires funds to create interface modules which will enable interfacing with the public.

Service	Use	Status
Online Deeds Registration	The feasibility study was done. BPR (As-Is process) was done. BPR (To-Be process) not yet done pending international benchmarking. There is need to do benchmarking with two identified countries (Sweden and South Africa) to enable the team to identify a suitable model to base their To-Be process.	The current financial constraints is preventing the team from doing benchmarking.
Namibia Integrated Employment Information System	NIEIS is a system initiated by the Ministry of Labour, to collect, store and update information of job seekers. The system stores names, qualifications and occupations of job seekers; vacancies in the labour market; specialized skills and qualifications possessed by Namibian citizens and permanent residents and employers in Namibia.	Fully functional system.

4. Improving Government Service Delivery Through e-Service

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Abstract

e-Government has demonstrated to be a critical lever for achieving accountability, effectiveness, inclusion and responsiveness in the provision of e-Services. In addition, there are a plethora of contextual and global benefits that can be harnessed when government departments provide e-Services such as a significant reduction in the cost of public services. With the emergence of the COVID-19 which has disrupted traditional work and service provision norms, e-Government presents itself as a conceptual and practical basis for the continued provision of competent public service realisation through digital platforms anywhere and anytime. e-Government has also emerged as a perfect platform for achieving some of the sustainable development goals (SDGs). Namibia has already done some substantial work towards the eventual realisation of the full array of e-Government promises – what is needed now is to amalgamate these efforts and systems into one information ecosystem. This paper provides insights into how e-Government can be positioned in the context of Namibia in order not to miss out on perceived e-Service benefits. It is hoped that if Namibia were to overcome a myriad of contextual challenges in the design and implementation of e-Government systems, a lean public service delivery system can be realised.

i. Introduction

1. **The COVID-19 pandemic pushed humanity to the edge by forcing them to technologically innovate in order to achieve desired levels of productivity and maintain some form of life normalcy**. National lockdowns world over, Namibia inclusive, have ensured that individuals adapt their ways of doing things and speedily adopt the different emerging technologies as interaction platforms and as enablers of work (Maritz, 2020). Despite the negative impact of the COVID-19, governments still need to provide public services at the expected levels of service quality. This is where e-Government, which enables government departments to provide e-Services, comes in. Namibia has been implementing e-Government for over two decades although the rate of adoption by individual citizens and businesses is still comparatively low.

2. **E-Services have a myriad of advantages**. One of the key advantages is the promise for improved provision of information to individuals. Citizens and businesses are now able to universally access information and be informed on many aspects of governance through e-Services. An informed citizenry is a precursor to a productive and empowered population which can positively contribute to the growth of the economy. Without information, people are not aware of many opportunities that the economy has to offer (Kearns, 2004) and are therefore excluded from effective economic participation. E-Services enable citizens to apply for government services using multiple technology

platforms and therefore not expected to physically visit government offices. In advanced e-Government solutions, the private sector is able to use e-Services to interact or do business with the government.

3. **Realising e-Government is not easy and calls for a sustained commitment and continued innovation from different stakeholders**. The implementation of e-Government projects all over the world has shown that it takes a considerable level of investment (financial resources, citizen and government agencies' commitment, innovative ideas for continued adaptation and evolution given continuous changes, among others). For example, since 2012 Botswana has spent billions of Pula to develop e-Government although not a significant e-Government stature has been reached (Samboma, 2019). Other countries such as South Africa and Mauritius have been providing e-Services to its citizens for over two decades having invested substantially and have achieved relatively higher levels of e-Government development. It is clear that e-Government is not a once-off project but one that spans decades before a mature development level can be achieved. It is a long road that needs all stakeholders to exercise patience and persistence in order to overcome the twists and turns during the design and implementation cycles. African countries such as Namibia are encouraged to take an incremental approach to achieve meaningful e-Government paying attention to the context in which it is implemented.

4. **Since e-Government has proved to be a multi-dimensional phenomenon, it is important to involve many players such as the private sector in designing and implementing its different facets**. This should be coupled with a client-engagement strategy so that the would-be e-Government consumers are involved in the design processes. Many designs of e-Government have focused on technology leaving out the other equally important factors. Provision of adaptive and sustainable e-Services need not entirely focus on technology but also on the people and systems that bind the whole public services sector together. Technology is the key enabler and platform upon which e-Services are delivered. Any long-lasting e-Government development strategy needs to be people-centric and one that carefully considers the context in which e-Government is going to be implemented.

ii. Background

5. **Appreciating the factors and context of e-Services is important for public sector modernisation**. Understanding the factors responsible for the successful implementation of e-Services requires comprehending the contextual nuances that may be at play in an area in which e-Government is implemented. Understanding the context is likely to lead to appreciating the likely impact of e-Government in line with public sector modernisation and efficiency efforts.

6. **Public Value Management (PVM) needs to be the focus of e-Government**. From its original conceptualization of New Public Management, e-Government has been moving towards the concept of Public Value Management (PVM) which is focused on benefit realization of e-Government projects towards the realisation of PVM, the scope of e-Government has been enlarged: it can intertwine with almost all facets of life: from healthcare to intelligent transport systems, smart cities, democracy and/or economic inclusiveness (Sharma, Guttoo & Ogra, 2014). In the context of Namibia, e-Government has focussed on the provision of public e-Services. The different other variants of e-Government solutions are yet to be realised.

7. **In many parts of the world, it is evident that e-Government has easily been accepted contrary to African and other developing world contexts**. Why is it so? In many instances, many of the corrupt government officials have deliberately moved to block meaningful development of e-Government. This has robbed many of the African people from benefiting from e-Government innovations which are mostly presented as means to achieve social good. In many parts of the world, e-Government has been used to address the social or economic quagmires. For example, in India e-Government was integrated with land administration systems with a view of encouraging transparent land administration processes. Land administration was very complicated with huge pieces of land exchanging hands illegitimately. In Georgia, massive corruption in government deals and procurement processes made citizens lose confidence in government institutions. In both India and Georgia, the introduction of blockchain technology meant that government business processes left an audit trail which increased confidence and trust levels on government processes by the citizens.

8. **Some of the most common e-Services emanating from a well-developed e-Government project include**: e-Customs (using IT to manage custom information (customs declarations, custom tariffs and duties, among others)); e-Tax (allows citizens and businesses to accomplish the filing of taxes using IT platforms); e-Licensing (applying for a license online and being able to receive it online without physically visiting a government department); e-Procurement (using IT integrated platforms to order and purchase goods and services online). The emergence and realisation of e-Service innovations has seen many African countries join the bandwagon towards realising public service excellence. For example, in South Africa payment of government services such as municipal dues, taxes, etc. have been optimized using user-friendly mobile based e-Payment systems.

9. **The implementation of e-Services is partly motivated by the desire to increase the efficiency of public services and reduce unnecessary costs that government departments incur**. Efficiency in the e-Services can only be

achieved if there is a good degree of integration and interoperability between/ among disparate systems to facilitate electronic data interchange (EDI). When an advanced level of e-Government maturity is reached in Namibia, it will be important to consider ways to integrate e-Government systems with the public sector so that there could be enhanced participation in the governance processes and enhanced information exchange between public and private sectors. Upon reaching this stage, there will be cross-organisational process and information systems integration culminating into open and transparent information eco-systems in public-private sector interactions (Kachwamba & Makombe, 2011). Systems integration is very important because it contributes to avoiding the duplication of resources across various ministries and departments. In line with the desire for integrated government systems, South Korea implemented the Online Procedures Enhancement for Civil Applications (OPEN) which integrated government procedures. The sole purpose was to reduce public service inefficiencies and mitigate corruption. Another e-Government innovation designed for coupling with the OPEN system was the Korea ON-line E-Procurement System (KONEPS). Namibia will need to be already thinking of how the disparate systems in the public sector can be integrated into one informational space.

iii. ICT Initiatives in Namibia's Public Sector

10. **It is evident that the desire to provide a plethora of e-Services by the Government of Namibia was born more than two decades ago**. The institutional, legal and regulatory framework is already established to some appreciable extent. What is needed to be done going forward is to align the different initiatives to the contextual nuances obtaining on the ground.

1. Initiatives

11. **There is need for Namibia to develop context-aware policies that create an enabling environment for e-Services and also create a conducive environment for emerging forms of e-Government**. For example, as early as 2011 South Africa had ensured that there was a requisite institutional, legal and regulatory framework to nurture the e-Government agenda (Naidoo, 2012). In the context of Namibia, adequate institutional arrangements exist to realize the promise of e-Government. The e-Government Policy of Namibia posits that the nation wants to have government departments adequately networked so that client-centered, transparent, cost-effective and efficient public services are provided to all. The good side of Namibia's policy framework is that e-Government initiatives are embedded within the Vision 2030 and the Fifth National Development Plan (NDP5). The NDP5 (2017 – 2022) has clear desired outcomes to the effect that by 2022, Namibia will have achieved a lot with regards to universal access to information, affordable communication and

technology infrastructure and services (Maritz, 2020). Other policy frameworks include the Revised IT Policy for the Public Service (2017), the Overarching ICT Policy 2009 (OICTP 2009) and the Universal Service and Access Policy (2013). There are other targeted initiatives which acted as the backbone for e-Government development, viz (a) The Namibia Accelerator Lab – towards location of the SDGs and promotion of rapid adoption of tech innovations; and (b) the e-Government Strategic Action Plan of the Public Service of Namibia (2014–2018).

12. **Several principles and actualities are on the ground**. Some of the prominent ones include: The launch of the Namibia e-Governance Policy in 2005; committed implementation of e-Government likely to lead to better e-Governance, transparence and accountability; bringing government closer to the people and thereby promoting inclusiveness; among others.

13. **The premise for e-Government in Namibia was already set by the development of a public-sector dedicated IT Policy by the Public Service Committee on Information Technology (PSCOIT)**. Each of the Offices, Ministries and Agencies (OMAs) is responsible for the management and budgeting of their own IT projects. The Office of the President, and specifically the Department of Public Service Information Technology Management (DPSITM) carried an e-Readiness survey to determine the state of readiness of OMAs to move towards the provision of e-Services. The survey revealed that a majority of OMAs do not have the capacity to share information effectively through integrated information systems (Mahunnah, 2017). Correspondingly, there was need for a deliberate policy for the OMAs to push them to get their houses in order in as far as IT infrastructure connectedness to enable the highly integrated and interoperable systems is concerned. These systems would in turn culminate into seamless sharing of data among OMAs.

14. **Several ICT initiatives in the different areas of the economy are being implemented in Namibia to advance technological integration**. Some of the key interventions include TECH/NA! Implemented in the education sector. Xnet (national research network), integrated eHealth system, and the ICT Centre of Excellence. There are also other ICT interventions such as the Scan-ICT Programme and the 081Every1 project. Specifically, to promote e-Services the e-Government Strategic Action Plan (eGSAP) is dedicated to promote the promotion of technology use in the public sector since 2011. Given the foregoing, it is clear that Namibia has been steadily investing in developing e-Government capacity.

2. Achieving Sustainable User Take-up

15. **The general lack of acceptance and continued usage by citizens and businesses, many e-Government projects fail as they miss out on their intended purposes**. In many instances, e-Services are not taken up adequately by would-be users because of lack of awareness, lack of trust, limited access to e-Services, usability issues, security concerns, inadequate funding, lack of adequate and appropriate skills to innovate e-Government solutions, resistance to change, and lack of context-informed design and implementation strategies and frameworks (Weerakkody, Baire & Choudrie, 2006).

16. **Five key challenges need to be overcome to stand realistic chance of implementing successful e-Government projects which would guarantee adequate user uptake**: citizen centricity (clear understanding of customers' characteristics and their involvement in the design and implementation processes); how to lift the veil and break the silo walls towards connected government); how to build capacity to stand a chance of delivering results; realizing the benefits of e-Government by common businesses and individuals; and having the capacity to continuously innovate given the evolving technology design platforms. Among these, the key challenge has been enshrining trust into individuals so that they can access government information and services through online platforms. Namibia will need to come up with strategic programmes that encourage the nurturing of trust among the would-be e-Government users (Sharma, Guttoo & Ogra, 2014).

17. **Contemporary e-Government should not leave anyone behind regardless of the tech platform they want to access e-Services from**. This entails that e-Services should be provided to consumers using multichannel service interfaces to accord citizens and businesses an opportunity to access services pervasively and comfortably. Further, platform/channel diversity is important because it allows e-Services consumers to have a choice on which channel to use depending on their needs at a given time. A key challenge to be addressed in this regard is the need to ensure that despite the channel heterogeneity, e-Service consumers are able to access desired and comparable level of quality in the services delivered (Weerakkody, Baire & Choudrie, 2006). e-Government consumers should be able to access e-Services using television, desktop or laptop computers, mobile phones, etc. A well-design e-Government project should also allow e-Services to be accessed using the known traditional platforms to assure us that e-Government implementation does not translate into e-Xclusion (Sharma, Gutto & Ogra, 2014). Namibia will need to carefully consider how to design e-Services so that that they are accessed using heterogeneous channels.

18. **Many government employees and citizens are not aware of the technology solutions that have been designed by the government departments (Mahunnah, 2017)**. Lack of awareness translates into unintentional absconding from engaging in e-Government applications. Targeted adverts can be used in Namibia to raise awareness of available e-Services. In advertising available e-Services, government departments may further consider using the USSD based messaging platforms to conveniently reach the citizens.

19. **e-Government is considered within the confines of the conceptualization of 'public value'**. Public value is achieved when there is perception and realization of high quality services. Positive perception is achieved by reliability and availability of public services, level of satisfaction with e-Services, and the importance of the services rendered. The second source of public value is trust in public institutions. Trust in e-Services is gained by the behaviour of public sector establishment over a period of time. The third source of public value is the degree to which the expected or desired public services are achieved by e-Service platforms (Kearns, 2004). In order for Namibia to benefit from the potential of e-Services, it needs to consider the following:

    (i) Use a customer-centric approach where both citizens and the private are included in the design efforts for e-Services. This approach demands that there is clear insight about who the consumers of e-Services would be once deployed;
    (ii) Use a stepwise approach to progressively introduce e-Services into the public service value chains which have a chance of being easily used by the citizens;
    (iii) Reduce the cost of public service provision through the automation of mundane tasks in the public service business value chains;
    (iv) Assure the citizens on the security and effectiveness of e-Services to increase public trust and buy-in;
    (v) Provide e-Services accessible on multichannel platforms towards achieving anywhere, anytime access to government information and services;
    (vi) Increase awareness and satisfaction levels by enshrining a resume of continued engagement with the citizens;
    (vii) Have a dedicated budget and team to drive e-Government project design and implementation;
    (viii) Build technical and managerial capacity among the public sector employees'.

20. **Considering the user at the centre of the e-Government design efforts is critically important**. Without careful considering of user-centricity, e-Service in government business cannot achieve its main targets. It is therefore expected that the main driver in the design of e-Government solutions should be the

individual users and not technology. The focus on the user moves the design of e-Service modules away from technology. Technology is just but an enabler and a platform upon which innovative e-Government solutions are designed.

3. e-Government Organisational Structure

21. **For a long time, the public service model in Namibia has been devoid of massive technology**. Mahunnah (2017) posits that the key challenges for e-Government implementation in Namibia include obsolete ICT infrastructure and poor financial resources, among others. Contemporary provision of public services uses the e-Services model where a majority of services are offered using different technology platforms. The provision of e-Services demands that public organisations undergo some form of organizational transformation and repositioning of the overall public service structure to accommodate increased use of technology. The envisaged transformation is not easy and will need strategic orientation in order to be accomplished.

22. **Namibia will need to review its policies to ensure that the institutional framework is on point to accommodate the slight changes in public service provision brought about upon the introduction of e-Government**. This may entail changing the structure, business processes, service platforms, and culture of existing organisations in Namibia (Maritz, 2020). For e-Services to be connected so that logical and interrelated service is offered, a government-wide enterprise infrastructure will need to be in place. The infrastructure will be part of the baseline technology infrastructure needed to achieve contemporary e-Government. In the development of enterprise architecture in the Namibian context, communication and collaboration, roles and responsibilities, technical know-how, and organisational culture are some of the key factors that will need to be considered (Shaanika & Iyamu, 2018).

23. **In line with the quest for a government enterprise infrastructure, Namibia will need to consider the different levels of desired information integration in the public sector**. Data and information integration in the context of e-Government is an important attribute to realizing a well-connected public service information space. There are many advantages attributed to data integration in the public sector. First, it reduces institutional fragmentation and brings all the public service information in one informational ecosystem. Second, it enables easy sharing of knowledge created in public business processes over time. Thirdly, it promotes openness and transparency in the e-Services. Integration further promotions the establishment of an information ecosystem where queries from e-Government consumers are processed in less time therefore adding to the levels of efficiency in the public sector (Weerakkody, Baire & Choudrie, 2006). Many countries around the world have designed e-Government Interoperability Frameworks (eGIFs) to articulate

guiding principles upon which e-Government integration efforts are hinged. For example, in attempting to achieve a seamless information integration in the e-Government system, the UAE government implemented the Abu Dhabi Systems and Information Centre (ADSIC) which acts as a one-stop shop for information. The ADSIC is a multi-channel system which enables information seekers to access government information using mobile phones, SMS, a dedicated mobile app, live chat, etc.

24. **Interoperability allows different information systems to exchange data, exchange meaning so that two or more machines understand the information exchanged the same**; and process agreement depicting agreements on how the machines need to act on the information exchanged (Mahunnah (2017). Namibia should consider coming up with the national e-Government Interoperability Framework to meaningfully achieve integration as it will act as a reference model for government departments as the e-GIF design e-Service solutions. This will make it possible to standardize the concepts, norms and standards, guidelines, vocabularies thereby setting the tone for e-Government implementation in Namibia (Mahunnah, 2017).

25. **What to do to achieve responsive and sustainable e-Government?** Although not mutually exhaustive, the following are some of the things that can be done to increase the success for the provision of e-Services in Namibia:

    (i) e-Government standards – given the Namibian context, it is important to contectualise and institutionalise the national e-Government standards that all government departments will be expected to follow. Some important standards may include: QoS and Service Leave Agreements; Interoperability Framework, Information Presentation and Access Procedures; Business Process manuals; Standard Operating Procedure manuals; etc. The standards will ensure that there is consistency in the execution of public business processes.
    (ii) Process re-engineering for increased efficiencies and computerisation of a majority of the public businesses both front and back-end – endeavour to provide multi-channel streams for the delivery of public services where both traditional and electronic service modules are available to citizens. This is important to achieve inclusiveness.
    (iii) Marketing and awareness of e-Government solutions – citizens and businesses need to be aware of the different platforms which can be used to access public e-Services to encourage universal usage. One effective way of creating awareness is through door-to-door roadshows.
    (iv) Namibia will need to consider dedicated initiatives to create tech incubators where a sizeable number of the youth are up-skilled to be at the end of the innovation value chains.

(v) Encourage continued innovation and revitalisation of the public sector – through sustained research activities, the Namibian e-Government project can keep abreast with emerging technological innovations and best practices on how to design and implement e-Government project.

(vi) Locate e-Government within the broader vision of the Fourth Industrial Revolution (4IR). Namibia assembled a task force in 2021 to drive this agenda. Contemporary e-Government solutions need to be built on top of 4IR technological orientations.

(vii) There is need for carefully-thought incentive systems which reward government departments who have progressively migrated many of their business processes onto technology platforms.

(viii) Continuous training and research – to ensure the Namibia public sector has a competent workforce able to innovate new technology platforms and systems as per evolving use requirements.

(ix) Strong leadership is needed to ensure that the different support initiatives to provide e-Services is realised. Strictly, there needs to be local and global leaderships to advance the e-Government agenda. The global leadership provides the coordination of the different e-Government efforts.

(x) Establishment of the DNA database so that citizens are profiled from birth and linked to the different e-Government systems (Maritz, 2020).

4. Assessment of Benefits Realisation of e-Government Projects

26. **e-Government projects are generally capital projects which cost substantial amounts of money**. Worth mentioning that e-Government projects cost millions of US dollars (Kertesz, 2003). Before engaging in e-Government, governments need to be convinced that the return on investment is substantial. In funding e-Government projects other projects that could have been funded by the government and developmental partners get the knock-in effect. This opportunity cost is immense and it is therefore expected that the high rate of e-Government project failure will need to be reduced. In order to mitigate the failure rate of e-Government projects, it is important to ensure that the anticipated benefits are carefully considered with regards on how they can be appropriately and optimally harnessed. One way to do that is to consider benefit realization expectation right at the conceptualization of the project (Chih & Zwikael, 2013).

27. **Many e-Government assessment methodologies that exist are influenced by the context in which e-Government is implemented**. There is no global e-Government development measurement criteria as the context in which it is applied dictates what each e-Government project goes out to achieve (Kearns, 2004). When evaluating e-Government, in many cases, the things that are measured are not the ones that ought to be measured therefore missing

out on the true value of e-Government. A sizeable number of e-Government assessment methodologies have focussed on monetary benefits such as cost servings neglecting the intangible benefits which are crucial to e-Government implementation. Comprehensive e-Government assessment methodologies should include both monetary and the measurement of the expected public good brought about by the implementation of e-Government (Mates, Lechner, Rieger & Pěkna, 2013). Because of the significant costs associated with e-Government, although many of the e-Government benefits are intangible, it is important to have a feel of what its cost-benefit is. The cost-benefit analysis is a critical component of the business case which articulates the opportunity cost when e-Government projects are conceived.

28. **In many instances, researchers and practitioners have overstated the benefits that e-Government brings on the table**. Many times the significant cost incurred in the set-up and maintenance of e-Government is usually ignored. The design, set up and implementation of e-Government is an extremely expensive undertaking and governments embarking on the journey of digitisation of public service need to clearly understand that. It is important to approach the expectations on anticipated benefits with caution because the reality is that e-Government is implemented in different contextual settings with varying challenges (Ying-Yi Chih, Ofer Zwikael, 2013). If implemented in an environment with acute challenges, the level of benefits amassed from e-Government implementation is diminished. Namibia is a third world country which, as expected, has not completely alleviated its challenges with regards to ICT infrastructure, ICT literature skills, information governance, etc. realistically, coming up with interventional remedies to overcome the contextual challenges is a first step towards realistic harnessing of e-Government benefits.

29. **Since e-Government is a multi-dimensional phenomenon, it makes sense that its evaluation needs to encompass multi-weighted methods which incorporate both tangible and intangible benefits**. Different objectives are weighted according to the priorities in the context in which e-Government is implemented. Using the concept of 'opportunity cost' it is possible to assess the value of the e-Government solutions on the overall governance objectives (Kachwamba & Makombe, 2011). It does not make absolute sense to measure the value of e-Government in monitory terms only using such metrics as Net Present Value (NPV), Payback Period or cost-benefit ratio because the value of e-Services trickles to all business processes of the government either directly or indirectly. Because of the concept of quantification quandary, many possible benefits for introducing e-Services such as 'increased satisfaction on the part of citizens in accessing public services anywhere anytime' can be directly quantified (Kachwamba & Makombe, 2011).

30. **Many e-Government projects are now using the benefit-oriented project management approaches and Projects IN Controlled Environments 'PRINCE2' where benefit realisation** is a critical component for establishing the business case and as a key component for project review. Benefit realisation is not out-put focused but a balanced measured approach where the overall good of a project is considered (Chih & Zwikael, 2013).

31. **Cost benefit analysis has focused on understanding both once-off and recurrent costs. Once-off costs can be capital costs such as ICT infrastructure (software and hardware and corresponding networking requirements)**. Recurrent costs can be intermittent costs incurred at certain intervals in the e-Government implementation cycle Kertesz (2003). The cost-benefit analysis is done by considering a set of elements as follows:

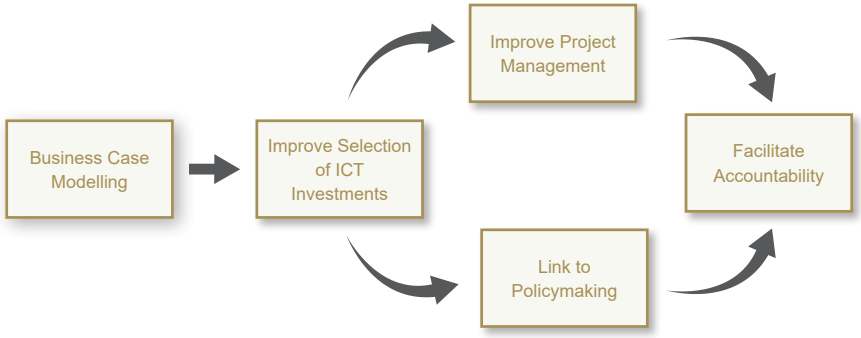
    (i) **Design phase**: costs related to business case design, internal capacity investments, business process redesign, training for key e-Government workers.
    (ii) **Implementation phase**: Costs for building and roll-out of e-Service platforms (both back-end and front-end systems).
    (iii) **Operational costs**: E-Service platform administration and maintenance costs. Also related to this cost is the organization work process restructuring, marketing and awareness campaigns, etc.
    (iv) **Benefits**: Perceived and actual benefits to the government departments (increase in efficiency, reduction in cost with regard to providing e-Service, reduce personnel, reduce crowdedness in the government offices, make it possible for citizens to pervasively access e-Services, allow development of new innovative services, etc.)

        (a) **Benefits to the consumers** – citizens and businesses. Allow citizens to access e-Services anywhere and at any time, allow realization of service-service, reduce the cost to access e-Services, among others.
        (b) **Mutual benefits of e-Services** – there will be increased levels of accountability and transparency in the public sector, more and better interaction between the consumer and the government culminating into improved relationship and trust, promote inter-agency interaction and co-operation, reduce bureaucracy, among others.

32. **Given the huge costs in design and the higher likelihood of failure of e-Government projects with regards to setting up and implementation, Namibia needs to consider the attributes that should go into the Benefits Realization Management (BRM) strategy**. At the core of the BRM strategy is the implementation of a cost-benefit analysis process of the proposed tech

innovation given the context in which the innovation is implemented. A carefully designed BRM strategy starts with the understanding of the planned outcomes of the use of ICTs, linking them to overall strategic business objectives with a view to achieve a higher cost/benefit ratio. The BRM strategy also considers monitoring costs of implementation and evaluation of the overall achievements. The BRM will aim to improve the acceptance, adoption and usage of e-Services by the Namibian citizens.

Figure 1: Modules for e-Government Benefit Realisation



It is important to note that benefit realization planning and analysis occurs at whole stages of the project lifecycle.

(i) **Step 1**: Business case modeling – clear understanding of the project objectives, overall expected deliverables, risks involved and the value of project. A clear plan of the benefits realization schedule needs to be in place. For e-Government projects, there is need to include expected changes that need to be implemented and their associated costs.
(ii) **Step 2**: Monitoring project implementation towards striking a balance between costs and benefits.
(iii) **Step 3**: Evaluating if the project has been done within the benefit and cost boundaries.

vi. Current and Future Prospects

33. **Namibia needs to ensure that there is appropriate underlying ICT infrastructure that can connect government departments and the citizens**. Reference to the already conducted e-Readiness assessment can help understand the state of ICT infrastructure in place to support desired e-Services. Based on e-Government developments elsewhere, the Namibian e-Government development trajectory needs to consider aspects of e-Government functionalities as achieved in the world elsewhere:

(i) Utilisation of blockchain-based IT applications which leave a audit trail and therefore reduces the incidences of corruption in the public procurement processes. E-Procurement processes, such as the Pan-European Public Procurement On Line (PEPPOL) makes it possible to have efficient procurement processes which cost relatively less than traditional procurement processes.

(ii) Digital identification of citizens, such as the EU e-ID STORK (Secure idenTity acrOss boRders linKed) and the Netherland's DigiD is critical for managing information regarding citizen information (Weerakkody, Baire & Choudrie, 2006).

(iii) Government departments need to have e-Services with adequately integrated data systems such as the X-Road innovation in Romania. The X-Road presents itself as an interoperability innovation platform for data exchange within the different government departments. The use of the X-Road enables proper execution of queries where decision depends on drawing and analyzing information from multiple sources stored in different databases and information portals of public organisations (Weerakkody, Baire & Choudrie, 2006).

(iv) Funding structure of e-Government: the government alone may not have adequate resources to fund and manage the different facets of e-Government. It is therefore important that there be considerable efforts in the Namibian context to practically explore the PPP and cloud-funding models with actors drawn from both internal and external environments. It is a given that efforts encouraging any form of integration between public and private enterprises will ultimately draw attention from the private sector partners (Naidoo, 2012).

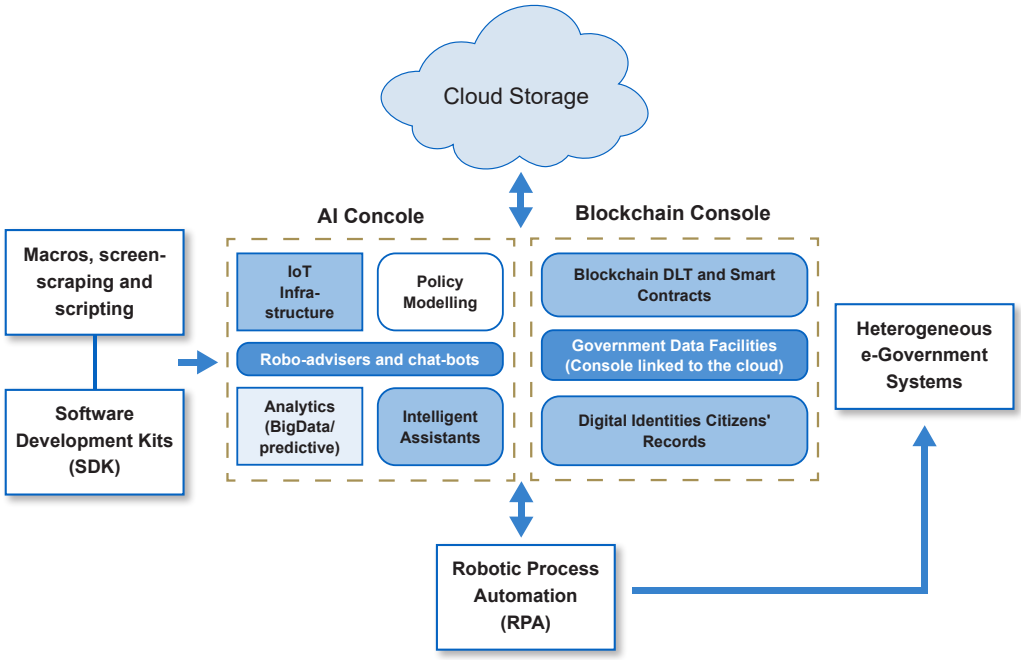
34. **With the fourth industrial revolution (4IR) emerging as both a conceptual and practical basis upon which e-Government is to be hinged**, it is important to nurture the culture of innovation in the public service. Future e-Services are going to be accessed using intelligent and automatic application programme interfaces (APIs) where e-Content accessed will depend on the consumer profile. Incorporating the advanced innovations in Artificial Intelligence and blockchain, e-Government solutions are going to be both intelligent and automatic culminating into 4IR-based e-Government solutions. The emergence of 4IR-based e-Government has led to enhanced service delivery innovation unlocking opportunities never thought of barely a decade ago. Further, there is a possibility of realizing Open Governance which enhances enhanced levels of responsiveness, efficiencies and accountability.

35. **The design of AI-augmented government needs to follow fundamental principles with reference to the context in which AI-augmented government is desired**. Some of these are: ensure that citizen's input even at the grassroots level is considered to demystify unpalatable misconceptions

of AI in government; ensure that the privacy dimensions of data and storage or sharing aspects are taken care of; instead of reinventing the wheel, the AI e-Government system needs to be incrementally embedded or integrated onto traditional e-Government designs.

36. **In order to appropriately support the integration of AI into e-Government, requisite national physical IT infrastructure is desired (Wirtz & Weyerer 2019)**. Although this is not a comprehensive technology stack to achieve automation and intelligence in the e-Government environment, it does articulate important aspects of some of the desired technologies. Figure 2 provides the basic technology attributes needed to achieve basic intelligence and automation in the e-Government environment.

Figure 2: AI-Augmented Government Integrated Modules (Author's own concept)



37. **Six key modules are proposed: robotic process modules are technology innovations that allow the automatic dispensation of public services; the cloud storage console allows heterogeneous applications** to simultaneously access the same data in order for government departments to provide an instantaneous service; the AI console provides articulation of key technologies needed to achieve a good degree of intelligence in the e-government services; the blockchain module enables the e-Government applications to be done using open systems so that there is enforced accountability in the system;

and the Software Development Kit (SDK) providing sharable application development modules for programmers and developers to develop and include the contextual characteristics.

v. Conclusion

38. **This paper has interrogated the practical aspects of e-Government design and implementation in Namibia with a view to realising the many benefits that e-Government has to offer**. e-Government projects have been designed using different foci – many of the recent ones have been designed with a view to linking them to the aspirations of the SDGs.

39. **The success of e-Government projects is hinged on understanding the key contextual nuances that need to be considered into the design of e-Government solutions**. These nuances are then grouped into defined modules which are implemented in a stepwise approach. It is important that Namibia follow this step-by-step approach in designing its e-Government solutions to stand a chance to realise the perceived benefits.

40. **As articulated in this paper, there are so many contextual challenges that may limit the development of e-Government in Namibia**. Some people may argue that Namibia may not have the desired financial resources and technical expertise to effectively develop e-Government. However, it can be argued that sustainable e-Government development requires a step-by-step approach evolving from traditional e-Government development to the futuristic AI-enabled government. Namibia is slowly positioning itself to develop ICT capability given the assembling of the national 4IR committee.

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5. Gearing up a Post-Covid Global Economy: Policy Options and Strategies for Namibia - An International Perspective

By:
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i. Introduction

1. **While it is still too early to fully assess the consequences of COVID, it is clear that to-morrow's world will be significantly different from the one we knew before the pandemic**. Inequalities have started to rise again and may grow rapidly between future-ready economies and the rest of the world. Digital transformation is central to that process.

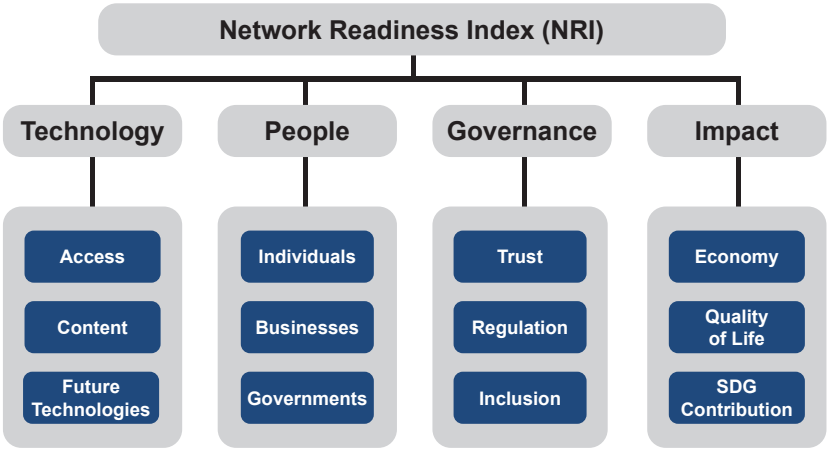
2. **The purpose of this paper is four-fold**: (1) stress the importance of technology in the current transformation of the world economy, (2) highlight the importance of benchmarking and measurement in designing a national digital transformation strategy, (3) describe the current status of Africa and Namibia in the emerging post-COVID global economy, and (4) offer possible avenues to make Namibia's economy better prepared for the future.

ii. How to Measure Technology - and Network-Readiness, and Why Does It Matter?

3. **It is critically important to keep in mind that you cannot improve what you cannot measure**. Therefore, benchmarking and measurement are so critically important in assessing and accelerating digital transformation in all types of economies. Regarding technology and digital transformation, one of the most largely recognized benchmarking tools is the Network Readiness Index (NRI), which is an annual report published over the last 20 years (initially by the World Economic Forum and currently by Portulans Institute). This report covers more than 130 economies and includes key metrics on the use of ICT for development and competitiveness. Redesigned in 2019 to make it more reflective of current ICT issues and make it more future-ready, the NRI is not about 'naming and shaming': it is meant to be an action tool for local decision makers.

4. **The model on which NRI is built relies on the fundamental underlying principle: the world's collective future will require a harmonious integration of people and technology**. The model itself is built around four pillars (technology, people, governance and impact) themselves based on a set of 12 sub-pillars, and some 60 indicators (see figure 1 below).

Figure 1: The NRI Model



5. **NRI is therefore a holistic model that attempts to consider technology not as an end in itself, but as a critical element of a national development strategy**. If we look at the 2020 NRI rankings, we see that rich countries constitute the top of the NRI on the 132 economies covered. The top three are Sweden, Denmark and Singapore. The domination of richer countries is quasi-total in the top 20 of the NRI rankings. If we consider the NRI pillars individually, the picture is not significantly different: on the 'technology' pillar for instance, Switzerland leads, followed by Sweden and the Netherlands. On the 'people' pillar, Denmark dominates, followed by Korea and Finland. On 'governance', Norway is the leader followed by Denmark and Netherlands, whereas on 'impact' it is Singapore that leads the world, followed by Switzerland and Sweden.

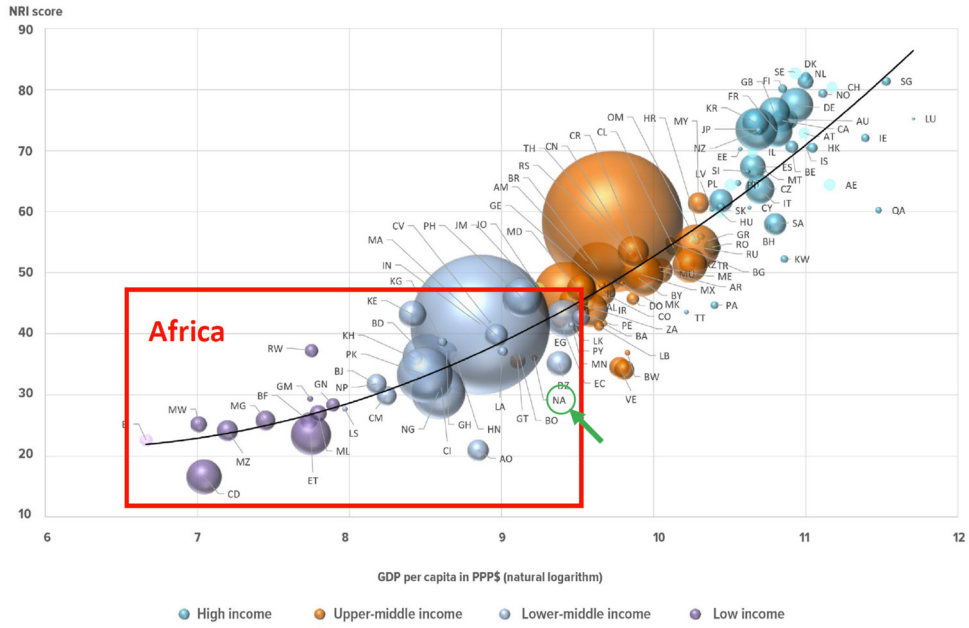
Figure 2: Top Ranking Countries in NRI 2020

Country	Rank	Score
Sweden	1	82.75
Denmark	2	82.19
Singapore	3	81.39
Netherlands	4	81.37
Switzerland	5	80.41
Finland	6	80.16
Norway	7	79.39
United States	8	78.91
Germany	9	77.48
United Kingdom	10	76.27

iii. How does Africa fare on the NRI scale?

6. **As in previous years, 2020 NRI data confirm the strong correlation between income per capita and network readiness**. The global digital divide has not been reduced as fast as one might have expected.

Figure 3: Africa in NRI 2020



7. **Figure 3 above is quite clear: as a continent, Africa is situated as the lower end of the global NRI rankings**. Despite this worrisome performance, however there are many examples showing that Africa is ready to benefit from technology and accelerate its own digital transformation. For example, in Mauritius, in Kenya, in Ethiopia, as well as in Tanzania.

8. **Namibia's NRI ranking is lower than its GDP per capita suggests**. When comparing income per capita and network readiness (as in figure 3), one can see that Namibia is below the 'regression line' of the NRI, which means that the country's performance on NRI is somewhat lower than what its GDP per capita would suggest. By comparison, Kenya is in the opposite situation. There is hence room for improvement in Namibia's network readiness.

9. **It is also important to keep in mind that Africa is a highly diverse continent, and that what may work in North-Eastern Africa may not be applicable in Austral Africa, and vice versa**. A sub-regional approach is hence necessary to assess practical ways to accelerate digital transformation in Africa.

iv. Focusing on the Southern Africa sub-region, and Namibia

10. **NRI data indicate that Southern Africa is the best-performing African region with regard to leveraging ICT's to pursue SDG's**; it is also relatively strong in 'Content' and 'Trust'. In the sub-region, Namibia ranks 3rd overall, after South Africa and Botswana (see figure 4 below).

Figure 4: Southern Africa in NRI 2020

Southern Africa	
1. South Africa	(76)
2. Botswana	(99)
3. Namibia	(103)
4. Lesotho	(121)
5. Eswatini	(122)

11. **If we move to a higher level of detail, we can see that on the NRI pillar on which Namibia ranks comparatively the highest is that of 'People' (for which it ranks 103rd in 2021)**. However, that performance is not evenly distributed, as it seems to be better for 'individuals' (97th) and 'government' (98th) than for 'businesses' (108th). 'Impact' is the area where Namibia rates the lowest (117th), suggesting that it might be an area for priority action. (see figure 5 below).

Figure 5: Namibia's Performance in NRI 2021

NRI	Technology	People	Governance	Impact
109	105	103	104	117

Technology

Access	Content	Future tech
92	123	94

People

Individuals	Business	Government
97	108	98

Governance

Trust	Regulation	Inclusion
99	121	91

Impact

Economy	Quality of life	SDGs
101	127	95

v. What Can Be Done?

12. As Vera Songwe, the Executive Secretary of UNECA Africa recently mentioned, “Even though there is a lot of celebration around how far Africa has come, in terms of digitization, there still is a lot more that needs to be done, if we really want to deliver an inclusive Africa.”

13. For Namibia, as for many other African countries, this means that it remains important to consider technology as a means to an end, as opposed to an end in itself. It is also critically important to consider digital transformation as a potential accelerator of Namibia's economic and social progress.

14. In this context, benchmarking national efforts and comparing them to those of other countries (in Africa and beyond) should offer a solid basis for action. Moreover, strategic priorities to consider include the following seven:

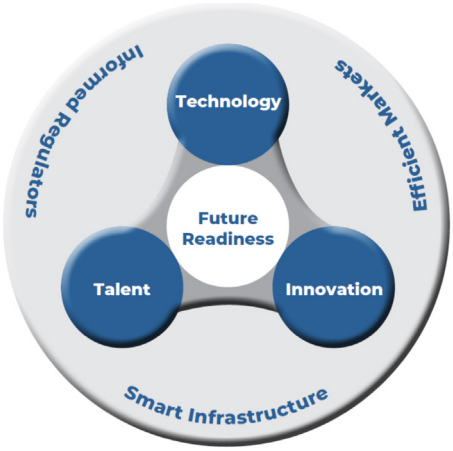
    1. Digital transformation needs to be systemwide. In other words, efforts and required in all of the four pillars of NRI;
    2. digital transformation needs to be society-wide. Namibia is relatively well positioned in this regard, since its score on ‘Inclusion’ is comparatively good;
    3. trust and security need to be enhanced, as they are central to successful digital transformation;
    4. the COVID crisis has accelerated digital transformation, bringing its status from that of national priority to that of global imperative. For a country like Namibia, catching up is hence urgently required if the country does not want to find itself on the wrong side of growing digital divides;
    5. education and re-skilling are critically important for successful and sustainable digital transformation;
    6. digital transformation can help the accelerated implementation of SDGs, which is another area where Namibia has proved that it could be ahead of many other countries on the continent and beyond, and
    7. building on success while accepting to face and assess critical gaps remains a critical core principle of any successful digital transformation strategy. Identification of current strengths and weaknesses in network readiness is hence urgently required in Namibia.

vi. Beyond Digital Transformation: How can Namibia be more 'Future Ready'?

15. Innovation and talent identification are critical for digital transformation. Ensuring that Namibia is better prepared for the future requires thinking beyond technology and assessing how to combine digital transformation with two other critical components of future development: namely innovation and talent competitiveness.

16. Technology, Innovation and Talent are indeed the three core dimensions on which competitiveness will be built in the future. They also happen to be areas in which powerful global benchmarking tools exist: the Network Readiness Index (NRI), the Global Innovation Index (GII), and the Global Talent Competitiveness Index (GTCI) offer decades of data and analyses, which can now be combined and used to assess a national economies' potential and priorities to face future challenges (see figure 6 below).

Figure 6: A Future Readiness Framework



17. **In addition, Portulans Institute has recently developed with Google a set of tools to allow countries to better assess their own degree of future readiness**. Such tools are described in a separate report called 'Are you ready for the future?', which was recently launched on the occasion of the UN General Assembly in New York last September.

vii. Conclusion

18. **Much remains to be done to allow emerging countries to face the challenges of the post-COVID era, and to seize the many opportunities that it will yield**. However, by giving sufficient attention to benchmarking, measuring and assessing performance, and to identifying strong and weak points, Namibia can indeed increase significantly its own technology performance and be more future ready.

6. Policy Issues Emanting from the 22nd Bank of Namibia Annual Symposium by Bank of Namibia Research and Financial Stability Department

1. Introduction and Background

The Bank of Namibia held its 22nd annual symposium at Safari Hotel and Conference Centre on the 4th of November 2021 under the theme: ***Namibia beyond COVID-19: Digital Transformation for sustainable economic development***. The symposium theme focused on Digital Transformation, and how Namibia can leverage it to achieve economic development. Significant advancements in communications technology and wide availability of internet resulted in what is dubbed as the digital age, marked by large volumes of a variety of data created at ever increasing speeds. This is creating digital imperatives for transformation, while simultaneously impacting an organisation's supply, demand, and operations. In this new age of technology revolution, Digital Transformation is the new way of doing business by leveraging digital technologies such as cloud computing, big data, mobile computing, social computing, and analytics resulting in significant improvements in operational efficiencies and customer experiences.

Digital transformation carries new tools and opportunities to tackle developmental challenges. It has brought about disruptions that trigger innovations in businesses and consumption patterns, transforming production systems and value chains. Furthermore, it results in the re-organisation of economic sectors, generating smart goods and services and introducing new conditions of competitiveness. Equally, digital tools can also support access to better services, including education and health. Namibia, therefore, needs to ensure that it takes advantage of the digital transformation and is not left behind.

Digital technology can drive innovation, economic growth and job creation in many key sectors of the economy and allows for greater interconnection of African markets with one another and with the rest of the world. It can enhance both market and financial access and inclusion, particularly in marginalised areas neglected by the traditional financial system. Promoting digitalisation in Africa, and particularly in Namibia, will maximise our impact in sectors such as health, energy, transport, agriculture, education and facilitate access to basic social services, consistent with our broader good governance and development policies and programmes.

Digital applications are already driving socio-economic transformation. Thereby increasing efficient production and distribution of goods and services, opening-up new opportunities for income generation for thousands of poor people, enhancing connectivity between people, societies, government and organisations. In the financial sector, we are already seeing the benefit of accelerated digitisation and technology. Through the e-wallets, blue wallets, easy wallets and send money wallet

applications, it is now more convenient and cheaper to transmit money to rural and remote residents. We must leverage these gains and facilitate financial inclusion and banking of the unbanked.

It is against this backdrop that the symposium was organised under this theme, in hope of advancing the country and become a digital economy through sustained economic growth. More specifically, the deliberations were guided by the following key questions:

(i) What can the country improve on to leverage digital transformation?
(ii) Can we promote infrastructure sharing and penetrate the rural regions fully?
(iii) How do we develop the necessary skills needed in the country?
(iv) How do we, as regulators, create a conducive environment that fosters innovation in digitalisation?

These issues, among others were addressed through presentations given by local and international speakers and supplemented by a panel discussion comprising of representatives from the University of Johannesburg, Communications Regulatory Authority of Namibia (CRAN), Mobile Telecommunications Company (MTC), University of Science and Technology (NUST) and the Bank of Namibia.

A key conclusion that emanated from the 22nd Annual symposium was that although the country has made some strides in digital transformation, a lot still needs to be done for digital transformation to benefit the country. Key drivers of growth were identified as; enhance intergovernmental coordination and cooperation; increase scientific and technological human and institutional capacity; regulatory reforms should be aligned to digital transformation; and promote infrastructure and data sharing.

2. Key Policy Issues Emanating from the Symposium

The papers and discussions at the symposium raised several options for Namibia to become a digital economy and advance in the digital sphere. The following is a summary of the key policy issues that emerged from the symposium:

i) Enhance Intergovernmental Coordination and Cooperation

Digital transformation of the public sector will largely depend on the focus, governance and intergovernmental coordination and cooperation. Namibia can build on its success and address critical gaps. This will guide the use of Information Communication and Technology (ICT) in building an efficient and user-oriented whole-

of-government ecosystem for public service production and delivery. Therefore, a strong governance model with clear roles and responsibilities of all institutions complemented with formal cross-sectoral bodies for decision-making and ensuring inter-governmental coordination and cooperation are essential for successful digital transformation.

Digital Innovation Hub (DIH) to act as a one-stop-shop, serving companies within their local region and beyond to digitalise their business. There is a need for the establishment of a national digital hub which could serve as a support facility that helps companies to become more competitive by improving their business/ production processes as well as products and services by means of digital technology. Digital Innovation Hub hold significant potential to support and assist SME's and start-ups and could become key actors in bringing digitisation within the reach of all industry sectors. It is also important to provide advisory services and training to digital innovation hubs to help them develop more commercially oriented business models, which could lead to a more diversified funding mix, reducing dependencies on public sources. Various stakeholders should be involved and pilot the hub, such as the CRAN, MICT, Ministry of Industrialisation, Trade and SME development – business registration & licencing, Ministry of Finance – tax regulation, finance institutions and private entities.

Government departments need to have e-Services with adequately integrated data systems such as the X-Road innovation in Romania. The X-Road presents itself as an interoperability innovation platform for data exchange within the different government departments. The use of the X-Road enables proper execution of queries where decision depends on drawing and analysing information from multiple sources stored in different databases and information portals of public organisations (Weerakkody, Baire & Choudrie, 2006).

ii) Increase Scientific and Technological Human and Institutional Capacity

There is a need to invest in education, training and re-training to ensure the presence of necessary skills for a digital economy. Namibia will not realise the full benefits of digital transformation unless it ensures that learners going through the school system are equipped with foundational numeracy and literacy skills and integrate digital technology in the lower levels of education, primary and secondary. Although local universities are providing degrees in areas of digital technology so that graduates are equipped for the labour market and its needs, there is a need for this to start from lower levels. This means that emphasis should be placed on computer literacy from primary school level so that learners become comfortable with the use of technology and being connected to the digital world from an academic perspective

on top of the exposure to other smart devices such as mobile phones. There is also a need for overall digital literacy in the country. The country should therefore increase scientific and technological human and institutional capacity. The private sector can also invest by making bursaries and scholarships available for computer literacy skills.

iii) Regulatory Reforms Should be Aligned to Digital Transformation

Expedite regulatory reforms necessary to fast-track digital transformation. There is a need for laws to be amended and policies to be put in place to ensure digital transformation in the country. It is thus important that the relevant policymakers ensure that these laws be promulgated in the short-to-medium term and the required policies be drafted and adopted accordingly.

iv) Promote Infrastructure and Data Sharing to Avoid the Multiplicity of Initiatives and Redundancies in the Deployment of Infrastructure

There is a need for collaboration within the different organisations for data and infrastructure sharing that will drive business growth. Data sharing, data exchanges, and data ecosystems are an essential goal for advancements in digital transformation. It is therefore fundamental that there is collaboration regarding data-sharing among the different institutions. The Communications Act, 2009 (Act No. 8 of 2009) as amended in 2020, allows for infrastructure sharing in a non-discriminatory way and allows for bilateral negotiations between the institutions. This means that more focused infrastructure sharing will enable further access as well as enable operators to focus on the competition in the service layer regardless of the extent of the sharing. Operators can share whole or strategically unimportant parts of its infrastructure and in so doing share infrastructure costs while providing acceptable performance. Furthermore, these savings can facilitate mobile operators' migration to next-generation technologies and provide its customers with the latest technology available.

v) Strengthen Infrastructure in ICT and Electricity in Rural Areas to Ensure Digitalisation is Countrywide

It is essential that Namibia continually invest in the development of digital infrastructures to meet existing and future demand and help bridge digital divides. Digital infrastructures provide the foundation for many new services, applications and business models. They are also crucial in underpinning and enabling the digital innovations that are transforming production, including in the context of the Fourth Industrial Revolution, now and in the future. An important area for policy action involves establishing national broadband plans with well-defined targets and

reviewing them regularly. These plans should ideally assess and address the key barriers to the deployment of highspeed networks and services, including the nature of the infrastructure market itself, geography, administrative barriers, regulatory uncertainty, high capital expenditure, access to spectrum, and in some countries, a lack of basic infrastructure (e.g. electricity) particularly in rural areas.

vi) Introduce Technologies and Innovations Into Business Processes

Funding structure of e-Government: the government alone may not have adequate resources to fund and manage the different facets of e-Government. It is therefore important that there be considerable efforts in the Namibian context to practically explore the Public-Private Partnerships (PPP) and cloud-funding models with actors drawn from both internal and external environments. It is a given that efforts encouraging any form of integration between public and private enterprises will ultimately draw attention from the private sector partners.

vii) ICT Infrastructure Should Connect Government Departments and the Citizens

Namibia needs to ensure that there is appropriate underlying ICT infrastructure that can connect government departments and the citizens. Reference to the already conducted e-Readiness assessment can help understand the state of ICT infrastructure in place to support desired e-Services. Based on e-Government developments elsewhere, the Namibian e-Government development trajectory needs to consider aspects of e-Government functionalities as achieved in the world elsewhere.

3. Policy Recommendations

Align Education and Research to the Digital Agenda

- There should be incentives for researchers to conduct innovative research in the country.
- Namibia's education curriculum needs to be reviewed and aligned to the needs of a digitally transformed society.
- Support the higher education institutions to ensure that the rate of evolution in the sector is aligned with the needs of the market to avoid skills mismatch.
- We need to create enthusiasm, especially in young people, in the space of digital transformation – future readiness. Combine technology, talent and innovation.

Regional and Developmental Policies

- Incorporate the sustainable development goals when determining the digital transformation trajectory and agenda of the country. Start small and grow from there while also sharing and collaborating with other economic players. As such, it needs to be a blended approach by way of going digital and keeping the traditional way of doing things in place as this is a journey and not an overnight goal.
- Openness is critically important when it comes to globalisation, external trade, ideas, and integration.
- We need to involve the young people in decision making and discussions around the digital agenda of the country by properly assessing the needs of the younger generation.
- Namibia should leverage the undersea cables for regional markets that are landlocked.

Other Cross-cutting Policies

- There is a need for corporate social responsibility in preparing current and future workers in digital transformation. Corporate social responsibility can be in areas of bursary opportunities and effective internship opportunities.
- There needs to be a policy mind shift in terms of how we view ICT – is it a service provider or economic enabler?
- The security of the digital space: data security, cybersecurity and consumer protection need to be considered as the digital transformation agenda takes shape.
- Abrupt introduction of technology is not advised: It is better to introduce people gradually and progressively to new technology while simultaneously re-skilling human resources.

7. Concluding Remarks and Vote of Thanks

By:

Mr. Ebson Uanguta,

Deputy Governor of The Bank of Namibia

Director of Ceremonies;
Honourable Jenelly Matundu, Deputy Minister of International Relations and Cooperation;
Honourable Ministers and Deputy Ministers Present;
Members of Parliament;
Honourable Regional Governors and Councillors;
Members of the Diplomatic Corps;
Executive Directors of Government Offices/Ministries and Agencies;
Deputy Governor and Board Members of the Bank of Namibia;
Distinguished Speakers;
Distinguished Panelists;
Captains of Industry;
Members of the Media;
All invited guests.

Ladies and Gentlemen,
Good afternoon!

1. It has been an honour and privilege for us at the Bank of Namibia to host the 22nd Annual Symposium under the theme "**Namibia Beyond COVID-19: Digital Transformation for Sustainable Economic Development**". As mentioned by the Governor, the symposium is a platform where we interact with the public and policy makers to discuss issues of national importance, which have an impact on policymaking. The support we have received from our policy makers and the public at large when it comes to this event, as you have witnessed today, not only highlights its relevance, but also gives us the motivation required to continue hosting such events.

2. **Director of Ceremonies, ladies and gentlemen! Before delivering my vote of thanks, allow me to point out a few key issues which emerged from the discussions today**:

   We need to recognise that our economy is in need of new levers or sources growth (enablers of growth). In this regard, digital transformation could be one of such potential sources of growth to help accelerate Namibia's economic and social progress.

   The ongoing digitalization of our economies and societies will only continue to expand and deepen. Digitalisation does not only contribute to productivity and efficiency, but also a broader socio-economic development. It can help accelerate the achievement of twin goals of shared prosperity

and reduced poverty. With a well-functioning digital economy, countries can achieve faster economic growth, offer innovative products and services, create jobs and export revenue, and achieve greater international competitiveness.

Digital transformation is an accelerator of development and Namibia must be ready to make the most of it. The rate at which the country deploys these technologies will determine if the country moves forward or will be left behind.

The symposium has highlighted several measures that Namibia can implement to become a digital economy.

a) **It is essential that Namibia continually invest in the development of digital infrastructures to meet existing and future demand and help bridge digital divides**. Digital infrastructures provide the foundation for many new services, applications and business models. They are also crucial in underpinning and enabling the digital innovations that are transforming production, including in the context of the Fourth Industrial Revolution, now and in the future. An important area for policy action involves establishing national broadband plans with well-defined targets and reviewing them regularly. These plans should ideally assess and address the key barriers to the deployment of highspeed networks and services, including the nature of the infrastructure market itself, geography, administrative barriers, regulatory uncertainty, high capital expenditure, access to spectrum, and in some countries, a lack of basic infrastructure (e.g. electricity) particularly in rural areas.

b) **There is a need for collaboration within the different organizations for data sharing that will drive business growth**. Data sharing, data exchanges, and data ecosystems are an essential goal for advancing in digital transformation. It is therefore essential that there is collaboration for data-sharing among the different institutions.

c) **Encourage the development of standards and standards-based interoperability to support the internet of things (internet of everything) and the fourth industrial revolution (4IR)**. Open, voluntary standards, grounded in bottom-up and market-led approaches, are an important tool especially when dealing with fast-developing technologies and shifts in markets. Appropriate standards and guidelines are also needed to maintain current levels of safety, ensure trust based on enhanced levels of digital security and privacy, improve energy and resource efficiency, and address emerging social and organizational challenges brought on by the digital transformation. Advanced international governance frameworks, building upon both existing

public- and private-sector-led processes and new multi-stakeholder initiatives for the benefit of all, as well as improved or new policy and implementation tools, are necessary to effectively address the complexity of today's interlinked issues in successful 4IR development and deployment.

d) **There is a need to invest in education, training and re-training to ensure there are skills needed for a digital economy**. Namibia will not realize the full benefits of digital transformation, unless it ensures that learners going through the school system are equipped with foundational numeracy and literacy skills. There is also a need for overall digital literacy in the country. The country should therefore increase scientific and technological human and institutional capacity.

e) **Digital transformation of the public sector will largely depend on the focus, governance and intergovernmental coordination and cooperation**. We noted that there are pockets of public digital services, which need to be further refined and improved upon going forward. As a country we can build on our success and address critical gaps. This will guide the use of ICT in building an efficient and user-oriented whole-of-government ecosystem for public service production and delivery. Therefore, a strong governance model with clear roles and responsibilities of all institutions complemented with formal cross-sectoral bodies for decision-making and ensuring inter-governmental coordination and cooperation are essential for successful digital transformation.

f) **Expedite regulatory reforms necessary to fast-track digital transformation.** There is a need for laws to be amended and policies to be in place to ensure digital transformation in the country. It is thus important that the relevant policymakers ensure that these laws be promulgated in the short-to-medium term and the required policies be drafted and adopted accordingly. Issues of trust and security of digital platforms and services should be addressed through relevant legislation to ensure that digital adaptation is accelerated.

Ladies and gentlemen,

3. It is our responsibility to restore a bright future for Namibia following the headwinds of the past five years, regaining the country's stellar track record by following through on the policies that the government has embraced to boost growth and development.

4. On behalf of the Bank of Namibia Board, Management and staff, I wish to extend our heartfelt appreciation to all the speakers, panellists, invited guests of various industries and the general public for your invaluable contributions. I would also like to especially thank our international speakers, who graciously joined us virtually. Allow me to take this opportunity to express our sincere appreciation to the deputy minister, Honourable Jenelly Matundu; for delivering the keynote address on behalf of the Honourable Netumbo Nandi-Ndaitwah, Deputy Prime Minister and Minister of the International Relations and Cooperation, which was very insightful and providing high-level support to the outcome of the Annual Symposium.

5. **In the same vein, I also extend a special thanks to the Ministers, Deputy Ministers and MP's and other dignitaries in our midst**. Your presence here makes us believe that the theme we chose was not only pertinent but will receive the necessary attention. I would also like to thank the media represented here today, not only for capturing the event, but also for ensuring that the Bank of Namibia Symposium deliberations will be taken beyond this venue in order to ensure that the nation at large benefits from today's discussions. Also, our gratitude goes to the Management and staff of the Safari Hotel and Conference Centre for this beautiful and convenient venue and for supplying us with good refreshments during our deliberations. Let me also extend a final word of thanks to the organising committee members under their chairperson Dr. Bernie Zaaruka, staff members of the Bank of Namibia. Thanks for a job well done.

6. **Finally, I would like to inform you that as usual, the proceedings of the symposium will be compiled in a booklet, titled: "Bank of Namibia Annual Symposium 2021", which will be posted on the Bank of Namibia's website**. Once again, thank you all, and the Bank of Namibia looks forward to seeing you at our 23rd Annual Symposium next year.

I wish you an enjoyable and productive afternoon ahead.

Thank You!