

Influence of Digital Era 4.0 on Youth Empowerment and the Achievement of SDGs in Namibia?



Merry Loise M. Nghihpavali and Tia Tariro Chata

Abstract The study aimed to examine the influence of Digital Era 4.0 on youth empowerment and the achievement of Sustainable Development Goals (SDGs) in Namibia. Digital Era 4.0 is the independent variable, which is the factor that was examined to assess its influence on the achievement of the dependent variable, the SDGs 4, 8 and 10. A quantitative research approach was used and 80 surveys conducted with final year School of Accounting students, of the University of Namibia (UNAM) as its population to collect primary data, there was no sampling done since the population was not time-consuming or resource-intensive to gather data from every individual thereby, making sampling unnecessary. A comprehensive literature review was conducted to identify the various sustainable development strategies that have been implemented in other countries with similar challenges to Namibia. Quantitative data were analysed using descriptive and inferential statistics to summarize and describe variables related to access to digital technologies and SDGs achievement. The findings were that there is a positive and strong correlation between the Digital Era 4.0 and the achievement of SDGs. The hypothesis testing concluded that Digital Era 4.0 has a positive and strong impact on SDGs to achieve youth empowerment and reduce wealth gaps. The study recommends that the Namibian government and its agencies through their initiatives, strengthen policies that focus on refining access to quality education, healthcare, career opportunities, and financial resources that can help level the playing field and empower the Namibian youth.

Keywords Digital Era 4.0 · Inequality · SDGs 4 · 8 & 10 · Youth · Empowerment

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1 Introduction

According to Chancel et al. (2022) and Asamoah (2021) Namibia is one of the most unequal countries in the world in terms of income distribution, with the large amount of resources owned by a small population, the elite holding a disproportionate amount of resources of the countries. Since the independence of Namibia, 1990, the government has taken strides to provide services to the citizenry and to redistribute the wealth evenly and reduce the wide gaps between the wealthy and the poor. These efforts scarcely reduced the inequality gaps due to factors founded on the historically prevalent state of the country. Therefore, despite being classified as an upper-middle-income country, the majority of the population still lives in abject poverty. Ultimately, the country faces significant challenges in terms of unemployment and income inequality, with the informal sector being the largest employer.

The SDGs and the strategies in place are a response to these significant imbalances to help narrow the extreme wealth gaps. These are such as improved economic growth, and access to basic services like education, and health facilities, thereby reducing poverty and increasing equality. The Digital Era 4.0 has had a significant impact on the economies of Southern Africa, including Namibia which Hoosain et al. (2020) postulates that this era has become the means and solutions to many of the world's problems as is facing developing countries in general and Namibia in particular. While Chauke et al. (2023), and Andreoni et al. (2021) contends that the Digital Era 4.0 has brought many benefits, such as increased productivity and efficiency, it has also worsened existing wealth imbalances in the region in that the wealthy are advancing and that the poor are falling behind.

Chauke et al. (2023) points to the main challenge brought about by the Digital Era 4.0 as the digital divide and hence by understanding these dynamics, the study aimed to provide insights and recommendations to address the challenges and the opportunities presented by the Digital Era 4.0 through the promoting inclusivity, reduce inequality, and the achievement of the SDGs in Namibia.

1.1 *Research Study Objectives, Questions and Hypothesis*

The objectives of this research study were to examine the influence the Digital Era 4.0 has on the youth population and to secondly, explore the association between the Digital Era 4.0 and the achievement of SDGs in Namibia.

The research questions were, Does the Digital Era 4.0 influence the youth population in Namibia? And is there an association between the Digital Era 4.0 and the achievement of SDGs in Namibia?

The research hypothesis was as follows: Null Hypothesis (H_0): The Digital Era 4.0 has no significant influence on youth empowerment, wealth inequality reduction, and the achievement of SDGs in Namibia. Alternative Hypothesis (H_1): The Digital

Era 4.0 has a significant influence on youth empowerment, leads to a reduction in wealth inequality, and contributes to the achievement of SDGs in Namibia.

1.1.1 Conceptual Model

Figure 1 above depicts the relationship between the variables Digital Era 4.0 and the SDGs 4, 8 & 10. The hypothesis is that Digital Era 4.0 has a positive influence on youth empowerment, reduces wealth inequality, and contributes to the achievement of Sustainable Development Goals (SDGs) in Namibia.

1.2 Limitations of the Study

This section discussed the limitations of the study to provide a comprehensive and translucent valuation of the study’s findings and to guide future research in addressing these limitations. This section also provided ways in which the study mitigated the limitations. The first limitation of this study was the relatively small population size of 80 students. A larger population size would provide more robust and consistent results, allowing for better generalizability to the target population. To mitigate this limitation, the study opinions to the unique population characteristics; the population is the University of Namibia final year students, the UNAM being a national university makes this population disposed for data collection since the population is exposed to the highest education from this invested government institution. Considering that these students have experienced education in the Digital Era 4.0, it made them relevant to the study. The population are anticipated to showcase how this education empowered them for the market and economic growth. The specific context of Namibia helped mitigate concerns about generalizability and provide a nuanced understanding of the local dynamics. The other limitation is the

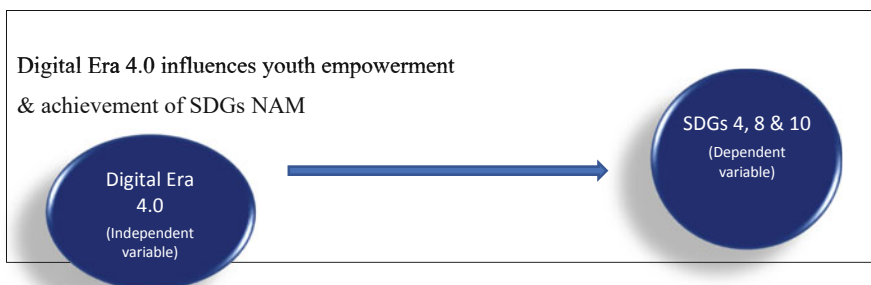


Fig. 1 Process through which the independent variable influences the dependent variable – designed by authors

reduced statistical power, with a smaller population/sample, the statistical power of the analysis may be limited. A larger sample size would enhance the statistical power, increasing the chances of detecting meaningful findings. To mitigate this limitation, the research study clearly communicated the scope and generalizability of the findings, emphasizing that the study results pertain specifically to this research study population to ensure transparency which should benefit readers to understand the limitations of generalizing the results to broader populations. Lastly the limitation of quantitative focus, focusing solely on quantitative measures negates the importance of qualitative insights and nuances related to youth empowerment and SDG achievement may be missed. To address this limitation the study incorporated information from other qualitative research studies to bring in the balance. It also recommended that a mix method study be done in the future to incorporate qualitative approach to this study, such as interviews or focus groups which would provide a deeper understanding of the experiences, perspectives, and contextual factors influencing the variables under study.

The paper is divided into four main sections, the first section explores existing research on the topic in the form of a literature review. This is followed by a description and justification of the research methodology employed in this study. Later, the findings are discussed, and ensuing conclusions provided.

2 Literature Review

Several authors echo that the Digital Era 4.0 symbols a new era of technological development characterized by the integration of advanced technologies such as artificial intelligence, the internet of things and robotics (Ntinda, 2022; Andreoni et al., 2021; Yadav et al., 2023; Asa et al., 2021). These innovations have the potential to revolutionize the way media and creative content is produced, making it faster, cheaper, and more efficient (Ntinda, 2022; Andreoni et al., 2021).

2.1 Technological Determinism Theory

The paper considered the technological determinism theory in support of this study, a reductionist theory that deduces that a society's technology drives the development of its social structure and cultural values. The theory was originated by Thorstein Veblen (1857–1929), an American sociologist. This framework suggests that technology, such as the Digital Era 4.0, has a significant impact on society and can shape social, economic, and cultural outcomes. The elements of the technological determinism are as follows: autonomous technological development, a perspective that assumes that technology follows its own trajectory of development, independent of social or cultural factors (Frischmann & Selinger, 2018; Durham Peters, 2019; Zuboff, 2019). Accordingly, Fang et al. (2019) postulates that technological

determinism suggests that technology has a deterministic influence in that it shapes and determines social, economic, and cultural outcomes. Technological determinism argues that technology is a powerful force that overarching influences social change (DiMaggio, 2019; Vargo et al., 2020).

This theory complements this research study in that it recognizes the potential transformative effects of digital technologies on various aspects of society, including education, employment, social inclusion, and access to resources. By adopting a technological determinism perspective, the study explored how the Digital Era 4.0 has the influence to shape the dynamics of youth, inequality, and the progress towards sustainable development in Namibia, considering both the opportunities and challenges that arise from technological advancements.

2.2 Empirical Review

The following sub-themes were used in this study to examine literature on the research question through identifying, selecting, and critically evaluating existing empirical studies in order to gain insights and draw conclusions about the study.

2.3 Sustainable Development Goals in Namibia

This research study focused only on 3 SDGs (out of the 17) which are interconnected to the research study. These are:

SDG 4. Quality Education: which promotes that by 2030 there be improved access to equitable quality education in the country for the youth. Education that promotes an enduring learning opportunity, through which young people can acquire the knowledge and skills that should equip them to participate fully in society and the economy. With a quality education, young people would be equipped for a decent work and promote economic growth.

SDG 8. Decent Work and Economic Growth: which states that by 2030, Namibia should promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. That through the creation of job opportunities, promotion entrepreneurship, the youth can be empowered to contribute to their economies.

SDG Goal 10: Reduced Inequalities: this entails that by 2030 the country should reduce income inequalities, social barring, and discernment, ensuring that the youth in Namibia have equal opportunities to participate in decision-making processes and have an equal access to resources. (*Extract from the Sustainable Development Goals: United Nations in Namibia*).

Accordingly, Meherali et al. (2021) identified some opportunities for youth through digital inclusion and connectivity, which is having greater access to information, communication, and online platforms for participating in decision-making processes. Adding that enhancing youth's digital literacy can enable them to access and utilize resources effectively, increasing their participation in decision-making (Meherali et al., 2021; Jung et al., 2022). The Digital Era 4.0 has brought about significant changes in the way societies function, and while these technological advancements have created numerous opportunities, like e-commerce where by the rise of the internet and digital technologies has revolutionized the way businesses operate, they have also exacerbated wealth imbalances in countries like Namibia. To address these challenges, governments in these countries need to invest in digital infrastructure and create policies that support entrepreneurship and innovation, which can help to reduce income inequality and promote inclusive growth (Meherali et al., 2021).

2.4 Digital Era 4.0 and Factors that Influence Access

There are several factors that influence access to digital technology amongst youth in developing worlds. According to Chege and Wang (2020); Szymkowiak et al. (2021), digital technology depends on the type and quality of the infrastructure provided by the authority. The infrastructure being reliable power and power sources, internet connectivity and telecommunications networks amongst other things. Access to digital technologies is heavily reliant on infrastructure, without which it becomes impossible to experience digital technology. While Mercader and Gairín (2020) supports the notion above, they add that in developing countries, chiefly in rural areas, inadequate infrastructure can be a significant barrier to accessing digital technologies.

Secondly the issue of affordability and the cost of digital devices, such as smartphones, computers, and internet services, can be prohibitive according to authors such as Graves et al. (2021); and Hernandez (2023). This is because several people in the developing world live in abject poverty. The costs and recurring expenses for data plans or internet access also limit access to digital technologies in people who live in poor communities. Another factor that limits access to digital technologies is education and digital literacy. According to Sony et al. (2020), some technology users may fail to navigate the internet and exploit the opportunities offered by digital technologies due to lack of education. Another factor that influence limited access to digital technology is the lack of government policies and regulations that are supportive and that promote digital infrastructure development and innovation to communities. Lastly, digital divides, which is the gap between the haves and the have nots influence access to digital technology, income inequality, geographic location, and socioeconomic inequalities play a critical role in access to technology, argues Lembani et al. (2020).

2.5 Achievement of the SDGs and Youth Empowerment Initiatives

The achieving of the SDGs and empowering youth in the developing world go hand in hand. Engaging young people in the implementation of the SDGs not only helps to address the challenges faced by their communities but also ensures the sustainability of development efforts. Here are some ways to achieve the SDGs and empower youth in the developing world. According to several authors (Okoli, 2022; Chitiyo et al., 2019) the provision of quality education and skill development opportunities to young people is vital for youth empowerment. Governments and supporting organizations should invest in accessible and inclusive education systems that equip youth with the knowledge and prerequisite skills to actively participate in sustainable development initiatives (Chitiyo et al., 2019). Furthermore, Li et al. (2020) contends that government should provide support for young entrepreneurs through offering training, access to finance, mentorship programs, and business incubation centers. Encouraging innovation and the use of technology can also empower youth to find creative solutions for sustainable development. By implementing these strategies, the world can provide an enabling environment for youth empowerment while advancing progress towards the SDGs in the developing world. Engaging and empowering young people is not only a matter of social justice but also a key driver of sustainable development and a promising investment in the future.

2.6 Impact of Wealth Imbalances on Youth Empowerment

Wealth imbalances can have significant adverse effects on youth empowerment. Kuddus et al. (2020) contends that there is a large gap between the wealthy and the poor, which creates disparities in access to resources and opportunities, which can hinder the empowerment of young people. According to Chiripanhura (2022); Wealth et al. (2023), wealth inequality causes limitation to youth access to quality education, which can further hinder the intellectual development of future prospects of youth resulting in failure to empower them with knowledge and skills. Furthermore, Shifotoka (2022) augments the idea by stating that when youth has no knowledge or limited education, the result is limited career opportunities for and further resulting in underemployment. Of which Theis et al. (2021) concludes by stating that this lack of access to career opportunities can restrict the ability of young people to gain valuable experience, develop their skills, and achieve their full potential.

Several authors in their study Chirisa et al. (2020) maintains that poverty reduces access to healthcare and basic services, nutritious food, and adequate housing. That this limited access to these essential services can negatively impact their physical and mental health, limiting their ability to participate fully in society and pursue their

goals (Chirisa et al. 2020; Wealth et al., 2023). Wealth imbalances can create financial barriers for youth who aspire to start their own businesses or pursue entrepreneurial ventures. According to Dadzie et al. (2020) limited access to finances and investment opportunities can hinder the ability of young people to turn their ideas into feasible initiatives. Lack of financial resources can hinder their creativity, innovation, and economic empowerment and social exclusion and marginalization: Youth from economically disadvantaged backgrounds often face social exclusion and marginalization, which could undermine their sense of self-worth and confidence. Governments of such communities should address these by developing policies that focus on improving access to quality education, healthcare, career opportunities, and financial resources can help level the playing field and empower young people.

3 Research Methodology

The research paper addresses the question, what is the influence of the Digital Era 4.0 on youth empowerment and the achievement of sustainable development goals in Namibia? The variable that is hypothesized to have an effect on the dependent variable is Digital Era 4.0. Digital Era 4.0 was allotted as the independent variable since the developments and impacts of the fourth industrial revolution has influence on the empowerment of the youth in Namibia (Mpfou & Mhlanga, 2022; Wealth et al., 2023).

3.1 Research Methodology Summary

Digital Era 4.0 is characterized by emerging technologies such as artificial intelligence, automation, big data, and the internet of things. The dependent variable that is expected to be influenced or affected by the independent variable is the achievement of SDGs 4, 8 and 10 through the reduction of the wealth gaps. Table 1 above indicates the summary of the research methodology.

Table 1 Research methodology

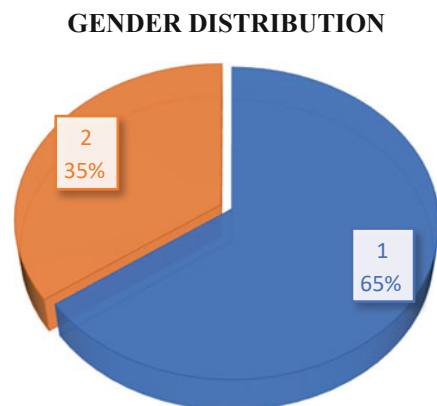
Research design	A quantitative research design was used for a comprehensive understanding of the relationship of the variable involved.
Population & sample	80 final year School of Accounting students, University of Namibia. The target population was relatively small and not time consuming or resource intensive to gather data from every individual, making sampling unnecessary.
Data collection technique	Quantitative data was collected through a survey, secondary data from sources such as government reports, statistical databases
Data analysis	Descriptively and inferential statistics was employed.

4 Research Results & Analysis

The research study collected primary data through a survey which was distributed to the 80 final year School of Accounting students from the University of Namibia, the total population was relatively small, conducting a census was feasible and practical. It was not too time-consuming or resource-intensive to gather data from every individual, making sampling unnecessary. To examine the relationship between the dependent variable (SDGs 4, 8 & 10) and the independent variable (Digital Era 4.0) the research study used the regression analysis as a statistical model. The data collected on the influence of Digital Era 4.0 on youth empowerment and the achievement of SDGs in Namibia was processed and analyzed using the Statistical Package for the Social Sciences (SPSS) software. SPSS was chosen due to its compatibility with quantitative data and its alignment with a positivist research approach. The processed data was subjected to descriptive statistics, including frequencies and percentages, which provided a comprehensive summary of the variables. The data was then coded and presented using tables, pie charts, and bar charts to facilitate clear interpretation. SPSS can be used to compute the means, which provided insights into the average levels of influence perceived by respondents.

Figure 2 above indicate gender analysis of the study from the research survey which was distributed to 80 final year students of the School of Accounting, which was the total population and was not sampled due to being relatively small, that conducting a census was feasible and practical. The gender distribution was indicated to be 65% female and 35% male.

Fig. 2 Gender analysis



4.1 Age Analysis

The research survey was distributed to 80 final year School of Accounting indicated in Fig. 3 that 49 respondents were students in the age group of 18–25 years old and 9 were the respondents between the ages 26–30 years old. It further indicated that 5 were students between the ages of 31–35 years and above.

Q1: Does the digital era 4.0 significant influence youth empowerment in Namibia?

The research survey collected data based on the score ranking from Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree Likert scale of 1–5 and 5 being maximum usage and 1 being minimum usage of digital technology. The results analysed in Tables 2 and 3 indicate a general use of Digital technologies with a 68% highest score in Strongly Agree, and with Agree score ranged between 18% to 28% in all the questions. A poor score of Disagree to Strongly Disagree ranged between 5% to 26% (Table 4).

Q. 2 Does the digital era 4.0 has a significant influence on achievement of SDGS in Namibia?

Table 5 depicts a data analysis of the question Does Digital Era 4.0 has a significant influence on the achievement of SDGs in Namibia. The respondents scored on the sub-question “Do youth have access to quality education” 37% was highest with Neutral followed by Agree and Strongly agree with a total of 37%. The poor score of 26% was for Disagree and Strongly Disagree. On the question does the current education promote sustainable growth and decent work for all according to the SDG 8? The score was 48% of the respondents being unsure and a difference of 10% score between those who Agreed and Disagreed. Those who Strongly Agree were 1% and those who Strongly Disagree were 5%.

Q. 3 To What Extend Does Wealth Imbalances Cause Youth Empowerment?

Table 5 above analysed the data collected on question 3 concerning the wealth imbalances and effect on the Namibian youth empowerment. On the question of corruption and lack of a transparent governance, the highest score was 38% in the

Fig. 3 Age analysis

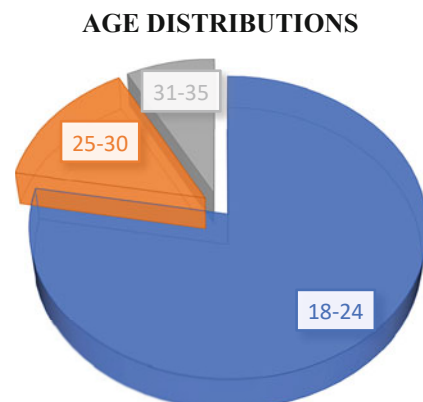


Table 2 Q1: Does the Digital Era 4.0 significant influence youth empowerment in Namibia?

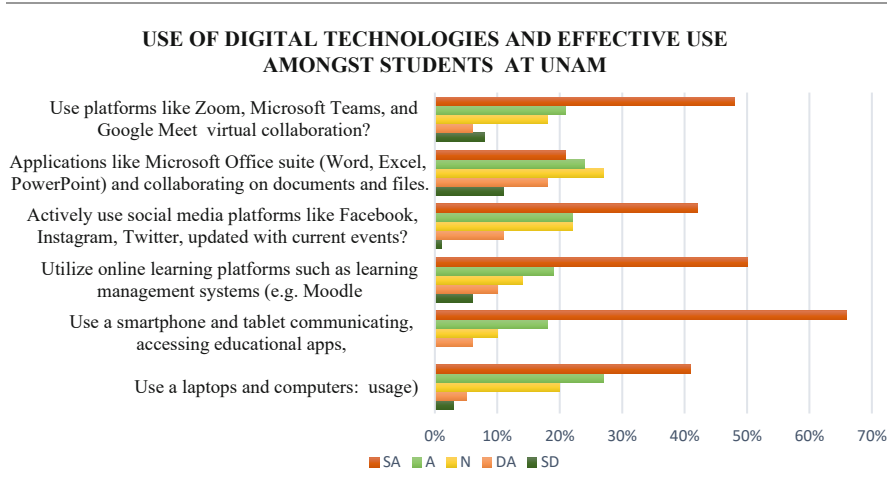
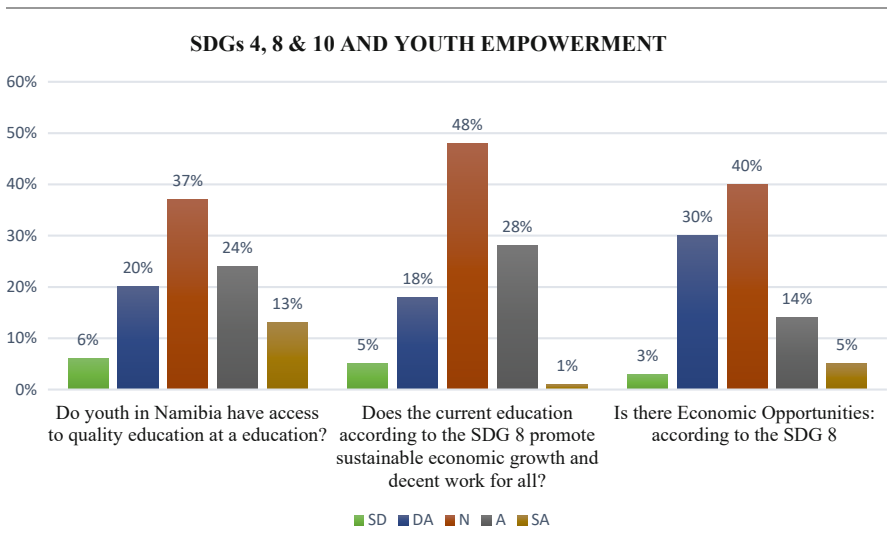


Table 3 Analysis of SDGs 4, 8 & 10 and youth empowerment



affirmative and 5% in the negative. On the limited access to financial services has a highest score as Strongly Agree of 41% and lowest score on Disagree with a 9%. The overall question Strongly Agree that limited finances, unemployment, land

Table 4 Analysis of factors that cause wealth

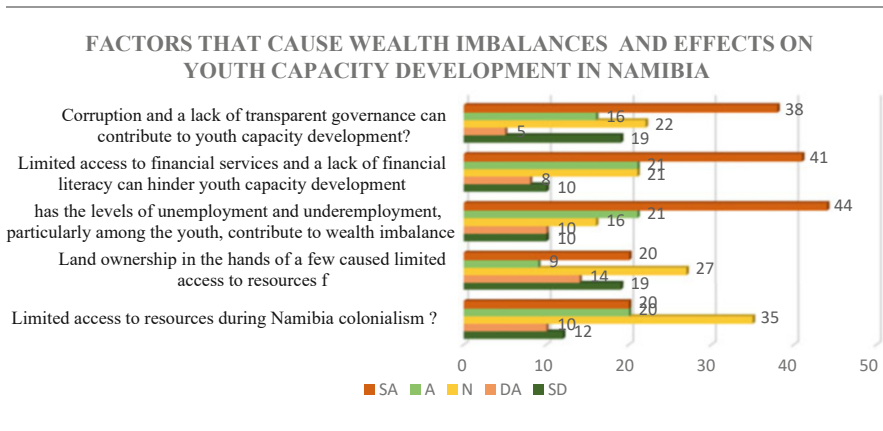


Table 5 Descriptive statistics

Descriptive statistics	Descriptive statistics	
	SDGs 4, 8 & 10	Digital Era 4.0
Mean	6.7302	3.9603
Standard deviation	.83769	.67867
N	63	63

ownership in the hands of few and limited access to resources increases wealth imbalances and had an adverse effect on youth empowerment.

4.2 Testing the Hypothesis

The logical steps employed to address the hypothesis using linear regression were as follows:

- Assessing the statistical significance of the association between the response variable and the predictors.
- Examining the effects of the predictors on the response variable.
- Utilizing odds ratios to understand the impact of individual predictors on the response variable.
- Evaluating the goodness-of-fit of the model to determine how well it aligns with the observed data.

4.3 Correlations Analysis

4.3.1 Relationship Between Digital Era 4.0 and Achievement of SDGs

The correlation analysis was done to measure the strength and direction of the relationship between the variable Digital Era 4.0 (e.g., access to digital technologies) and the variables representing youth empowerment, SDGs 4, 8 and 10 achievement (Table 6). The analysis of the Table 4 is that the relationship between the Digital Era 4.0 and the achievement of SDGs has a positive and strong statistical value of 0.826 which lies between 0.7 to 1 at the P value of 0.001 with a 95% confidence level which makes this relationship strong. If the value of correlation is less than 0.3 the relationship is weak, if it lies between 0.3 to 0.7 the relationship is moderate but if the value lies between 0.7 to 1 the relationship of the variable is strong.

4.4 Regression Analysis

After the predictor variable was found to correlate with the dependent variable with a positive and strong statistical value of 0.826 (in the analysis of Table 4) the study conducted a regression analysis to test the hypothesis. The null hypothesis that Digital Era 4.0 has no positive influence on youth empowerment and the achievement of SDGs 4, 8 & 10 in Namibia.

- Null Hypothesis (H_0): The Digital Era 4.0 has no significant influence on youth empowerment, wealth inequality reduction, and the achievement of SDGs in Namibia.
- Alternative Hypothesis (H_1): The Digital Era 4.0 has a significant influence on youth empowerment, leads to a reduction in wealth inequality, and contributes to the achievement of SDGs in Namibia (Table 7).

Table 6 Correlation of variables

		SDGs 4, 8 & 10	Digital Era 4.0
Pearson correlation	SDGs 4, 8 & 10	1.000	.826
	Digital Era 4.0	.826	1.000
Sig. (1-tailed)	SDGs 4, 8 & 10	.	<.001
	Digital Era 4.0	.000	.
N	SDGs 4, 8 & 10	63	63
	Digital Era 4.0	63	63

Table 7 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.826 ^a	.682	.677	.47632	.094

^a Predictors: (Constant), Digital Era 4.0

^b Dependent Variable: SDGs 4, 8 & 10

Table 8 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.667	1	29.667	130.761	<.001 ^b
	Residual	13.840	61	.227		
	Total	43.506	62			

^a Dependent Variable: SDGs 4, 8 & 10

^b Predictors: (Constant), Digital Era 4.0

4.5 Model Summary

Based on the analysis presented on Table 5, the percent of the variability in the dependent variable which is accounted for by the regression on the independent variable, R^2 is 0.677. Therefore, R squared on the model indicates that the independent variable influence youth empowerment through the achievement of the SDGs of the country at 67.7%. F – Sta (probability) depicts that the model is fit $p < 0.005$ (Table 8).

4.6 ANOVA

Based on the analysis presented in Table 6, the ANOVA results indicate that the model is statistically significant as evidenced by the F statistic and the significance value of $p < 0.05$. Therefore, further hypothesis testing was conducted, considering that the model satisfies the predetermined criteria for statistical significance. Therefore, the study rejects the null hypothesis (H_0) that Digital Era 4.0 has no significant influence on youth empowerment and the achievement of SDGs 4, 8, and 10 in Namibia. This inference is based on the observation that the p-value is below the predetermined significance level, providing evidence of a statistically significant relationship between Digital Era 4.0 and the outcome variable (Table 9).

4.7 Coefficients Analysis

Based on the analysis presented in Table 7: the unstandardized Beta is at a positive and significant impact which is less than .005 on the SDGs. When Digital Era 4.0 increases by 1 unit SDGs increase by 1.019 unit. Testing the hypothesis that Digital

Table 9 Coefficients^a analysis

Coefficients ^a						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	2.694	.358		7.523	<.001
	Digital Era 4.0	1.019	.089	.826	11.435	<.001

^a Dependent variable: SDGs 4, 8 & 10

Table 10 Residuals statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted value	4.7321	7.5350	6.7302	.69173	63
Residual	-.78263	1.09958	.00000	.47246	63
Std. predicted value	-2.888	1.164	.000	1.000	63
Std. residual	-1.643	2.309	.000	.992	63

^a Dependent variable: SDGs 4, 8 & 10

Era has a positive impact on SDGs to achieve youth empowerment and reduce wealth gaps. The study concludes that the hypothesis is supported, and the study rejected the null hypothesis and accepts the alternative hypothesis (Table 10).

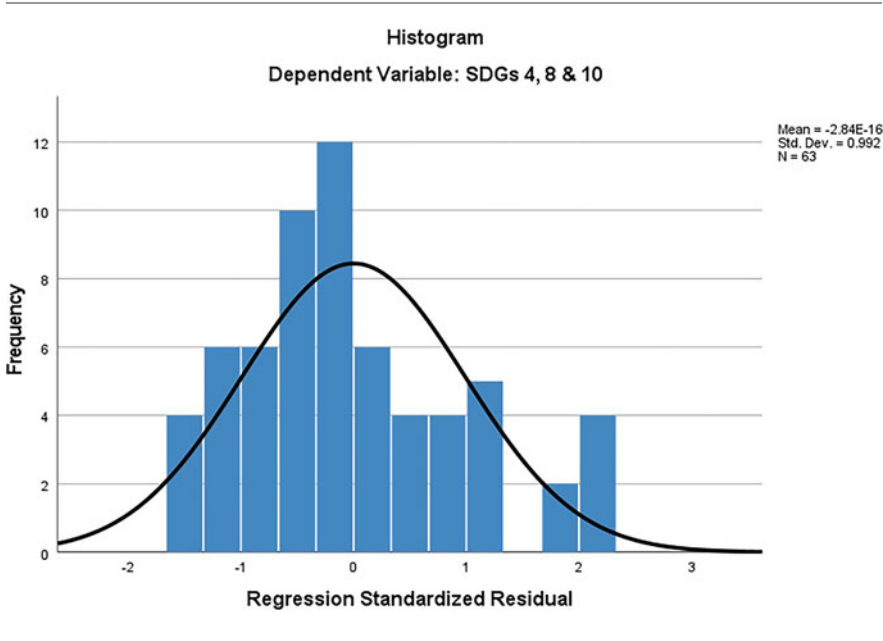
4.8 Residual Statistics

The mean of the residuals indicated .000 the average difference between the observed values and the predicted values from the regression model, which is close to zero suggesting that the model’s predictions were unbiased. The analysis had a standard deviation value of .992 which suggests that the residuals deviate from the predicted values by approximately 0.992 units. A higher standard deviation implies more significant variability or scatter of the residuals around the regression line.

4.9 Research Chart

Table 9 below depicts a bell-shaped histogram which indicated that the distribution of the data followed a normal distribution. Also suggesting that the data was symmetrically distributed around the mean. The frequencies gradually increase, reach a peak at the mean, and then gradually decrease on both sides of the mean. The bell-shaped histogram implies that the data points are evenly distributed around the mean. This suggests that the data was representative of the population and provided a solid foundation for making reliable inferences about the relationship

Table 11 Histogram



between the Digital Era 4.0, youth empowerment, and the achievement of SDGs in Namibia (Table 11).

5 Research Conclusions

5.1 Digital Access and Literacy on Youth Empowerment

According to Svotwa et al. (2023); Ntinda (2022) while over 60 percent of the global population has access to digital financial services hence Namibian youth have varying concerning levels of digital access and digital literacy. While some youth have embraced digital technologies and have access to online resources and opportunities, others face limitations in terms of digital access and skills. This digital divide among youth has implications for their educational, economic, and social opportunities.

The study also highlighted the association between the Digital Era 4.0 and wealth inequality in Namibia that though the economic growth has raised the living level of the world population, income disparity has increased according to several authors (Georgescu & Kinnunen, 2021; Ujakpa et al., 2020; Mhlanga, 2020). The concentration of digital resources and opportunities in the hands of those with access and

skills has contributed to wealth inequalities. Marginalized individuals and communities with limited access to digital technologies face increased challenges in benefiting from the digital economy, exacerbating existing wealth inequalities.

5.2 Impact of Digital Era 4.0 on SDGs 4, 8 & 10

Accordingly, in agreement with several authors (Mpofu, 2022; Govindan, 2022) the findings suggest that the Digital Era 4.0 has the potential to contribute to the achievement of SDGs in Namibia. Digital Era 4.0 can be harnessed to enhance access to education, healthcare, and economic opportunities (Mabkhot et al., 2021). And the study concluded that the digital divide and the wealth inequality act as barriers to the realization of SDGs, as marginalized populations face challenges in accessing and utilizing digital resources to their full potential. Overall, the research demonstrates the multifaceted relationship between Digital Era 4.0, youth, wealth inequality, and the achievement of SDGs in Namibia.

5.2.1 Recommendation

The study highlighted the value of addressing the digital divide, promoting digital literacy, and ensuring equitable access to Digital Era 4.0 technologies to harness the full potential of the digital era in promoting inclusive and sustainable development according to the SDGs of Namibia. It recommended to prioritize efforts to enhance digital literacy skills among youth in Namibia. This includes providing access to digital technologies, internet connectivity, and relevant training programs. By equipping youth with digital skills, they can actively participate in the digital economy, engage in online learning, and contribute to the achievement of SDGs.

The study recommends that to increase the scope both in population and cover all SDGs in Namibia. Government to ensure free access to digital infrastructure and internet connectivity across all regions to existing digital divide. MOEAC to integrate digital technologies and digital literacy into the education system at all levels. The study further recommends that the Namibian government and its agencies through their initiatives, developing policies that focus on improving access to quality education, healthcare, career opportunities, and financial resources can help level the playing field and empower young people.

References

- Andreoni, A., Chang, H. J., & Labrunie, M. (2021). *Natura non facit saltus: Challenges and opportunities for digital industrialisation across developing countries. The European Journal of Development Research, 33*, 330–370.

- Asa, A. R., Tsanga, D., Januarie, C., & Kamati, M. (2021). Technological innovation as a strategy for competitive advantage within the Namibian banking industry. *International Journal of Management Science and Business Administration*, 8(1), 68–72.
- Asamoah, L. A. (2021). Institutional quality and income inequality in developing countries: A dynamic panel threshold analysis. *Progress in Development Studies*, 21(2), 123–143.
- Chancel, L., Piketty, T., Saez, E., & Zucman, G. (Eds.). (2022). *World inequality report 2022*. Harvard University Press.
- Chauke, K. R., Mamokere, J., & Mabeba, S. J. (2023). Reflection on the proliferation of the fourth industrial revolution and its implications on rural areas in South Africa. *International Journal of Social Science Research and Review*, 6(1), 214–226.
- Chege, S. M., & Wang, D. (2020). Information technology innovation and its impact on job creation by SMEs in developing countries: An analysis of the literature review. *Technology Analysis & Strategic Management*, 32(3), 256–271.
- Chiripanhura, B. (2022). COVID 19 and inequalities the changing landscape of inequality and poverty in Namibia and the implications of the COVID 19 pandemic. *Inequality and Social Justice*, 52.
- Chirisa, I., Mutambisi, T., Chivenge, M., Mabaso, E., Matamanda, A. R., & Ncube, R. (2020). The urban penalty of COVID-19 lockdowns across the globe: Manifestations and lessons for Anglophone sub-Saharan Africa. *Geo Journal*, 1–14.
- Chitiyo, M., Hughes, E. M., Chitiyo, G., Changara, D. M., Itimu-Phiri, A., Haihambo, C., et al. (2019). Exploring teachers' special and inclusive education professional development needs in Malawi, Namibia, and Zimbabwe. *International Journal of Whole Schooling*, 15(1), 28–49.
- Dadzie, C., Fumey, M., & Namara, S. (2020). *Youth employment programs in Ghana: Options for effective policy making and implementation*. World Bank Publications.
- DiMaggio, P. (2019). Social structure, institutions, and cultural goods: The case of the United States. In *Social theory for a changing society* (pp. 133–166). Routledge.
- Durham P. J. (2019). You mean my whole fallacy is wrong: On technological determinism. You mean my whole fallacy is wrong: On technological determinism, 26–34.
- Fang, M. L., Canham, S. L., Battersby, L., Sixsmith, J., Wada, M., & Sixsmith, A. (2019). Exploring privilege in the digital divide: Implications for theory, policy, and practice. *The Gerontologist*, 59(1), e1–e15.
- Frischmann, B., & Selinger, E. (2018). *Re-engineering humanity* (1st ed.).
- Georgescu, I., & Kinnunen, J. (2021). The digital effectiveness on economic inequality: A computational approach. In *Business revolution in a digital era: 14th international conference on business excellence, ICBE 2020* (pp. 223–239). Springer International Publishing.
- Govindan, K. (2022). Theory building through corporate social responsibility 4.0 for achieving SDGs: A practical step toward integration of digitalization with practice-based view and social good theory. *IEEE Transactions on Engineering Management*.
- Graves, J. M., Abshire, D. A., Amiri, S., & Mackelprang, J. L. (2021). Disparities in technology and broadband internet access across rurality: Implications for health and education. *Family & Community Health*, 44(4), 257.
- Hernandez, L. (2023). Factors affecting the digital divide among underrepresented groups. *Journal of Artificial Intelligence and Machine Learning in Management*, 7(1), 25–33.
- Hoosain, M. S., Paul, B. S., & Ramakrishna, S. (2020). The impact of 4IR digital technologies and circular thinking on the United Nations sustainable development goals. *Sustainability*, 12(23), 10143.
- Jung, S. O., Son, Y. H., & Choi, E. (2022). E-health literacy in older adults: An evolutionary concept analysis. *BMC Medical Informatics and Decision Making*, 22(1), 28.
- Kuddus, M. A., Tynan, E., & McBryde, E. (2020). Urbanization: A problem for the rich and the poor? *Public Health Reviews*, 41, 1–4.
- Lembani, R., Gunter, A., Breines, M., & Dalu, M. T. B. (2020). The same course, different access: The digital divide between urban and rural distance education students in South Africa. *Journal of Geography in Higher Education*, 44(1), 70–84.

- Li, C., Ahmed, N., Qalati, S. A., Khan, A., & Naz, S. (2020). Role of business incubators as a tool for entrepreneurship development: The mediating and moderating role of business start-up and government regulations. *Sustainability*, *12*(5), 1822.
- Mabhkhot, M., Ferreira, P., Maffei, A., Podrżaj, P., Mądział, M., Antonelli, D., et al. (2021). Mapping industry 4.0 enabling technologies into united nations sustainability development goals. *Sustainability*, *13*(5), 2560.
- Meherali, S., Rahim, K. A., Campbell, S., & Lassi, Z. S. (2021). Does digital literacy empower adolescent girls in low-and middle-income countries: A systematic review. *Frontiers in Public Health*, *9*, 761394.
- Mercader, C., & Gairín, J. (2020). University teachers' perception of barriers to the use of digital technologies: The importance of the academic discipline. *International Journal of Educational Technology in Higher Education*, *17*(1), 4.
- Mhlanga, D. (2020). Industry 4.0: The challenges associated with the digital transformation of education in South Africa. *The Impacts of Digital Transformation*, *13*, 51.
- Mpofu, F. Y. (2022). Industry 4.0 in financial services: Mobile money taxes, revenue mobilisation, financial inclusion, and the realisation of sustainable development goals (SDGs) in Africa. *Sustainability*, *14*(14), 8667.
- Mpofu, F. Y., & Mhlanga, D. (2022). Digital financial inclusion, digital financial services tax and financial inclusion in the fourth industrial revolution era in Africa. *Economies*, *10*(8), 184.
- Ntinda, N. S. (2022). Examining the readiness of the Namibia college of open learning in adopting automation technologies for improved service delivery (Doctoral dissertation, University of Namibia).
- Okoli, C. I. (2022). Chapter four achieving inclusive TVE through digital resource applications in skill development of university undergraduates in Nigeria: Implications for Covid-19 era. Attaining Sustainable Development Goals in Families, Companies and Communities, 39.
- Shifotoka, S. N. (2022). *Measuring youth poverty in Namibia: An application of a multidimensional, multilevel modelling approach* (doctoral dissertation).
- Sony, M., Antony, J., & Douglas, J. A. (2020). Essential ingredients for the implementation of quality 4.0: A narrative review of literature and future directions for research. *The TQM Journal*, *32*(4), 779–793.
- Svotwa, T. D., Makanyeza, C., & Wealth, E. (2023). Exploring digital financial inclusion strategies for urban and rural communities in Botswana, Namibia, South Africa and Zimbabwe. In *Financial inclusion and digital transformation regulatory practices in selected SADC countries: South Africa, Namibia, Botswana and Zimbabwe* (pp. 161–179). Springer International Publishing.
- Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, *65*, 101565.
- Theis, N., Campbell, N., De Leeuw, J., Owen, M., & Schenke, K. C. (2021). The effects of COVID-19 restrictions on physical activity and mental health of children and young adults with physical and/or intellectual disabilities. *Disability and Health Journal*, *14*(3), 101064.
- Ujakpa, M. M., Osakwe, J. O., Iyawa, G. E., Hashiyana, V., & Mutalya, A. N. (2020, May). Industry 4.0: University students' perception, awareness and preparedness-a case of Namibia. In *2020 IST-Africa conference (IST-Africa)* (pp. 1–10). IEEE.
- Vargo, S. L., Akaka, M. A., & Wieland, H. (2020). Rethinking the process of diffusion in innovation: A service-ecosystems and institutional perspective. *Journal of Business Research*, *116*, 526–534.
- Yadav, M., Vardhan, A., Chauhan, A. S., & Saini, S. (2023, February). A study on creation of industry 5.0: New innovations using big data through artificial intelligence, internet of things and next-origination technology policy. In *In 2023 IEEE international Students' conference on electrical, electronics and computer science (SCEECS)* (pp. 1–12). IEEE.
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power* (1st ed.). Public Affairs.