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ICT Adoption and Improving Service Delivery within the Municipalities of the North-West Province, South Africa

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ABSTRACT
The advent of Information Communication Technologies (ICTs) has brought rapid communication transformation from analogue to digital. The digital divide poses a greater threat towards community service and rural development, with the government failing to provide effective and efficient communication strategies for service delivery to rural communities. Theoretically, the study pegged on, Information Communication Technologies for Development (ICT4D) which refers to "theories of Change", not only implying the designation of technologies and diffusion but a multifaceted, dynamic, and contentious socio-economic and technological process. This study employed qualitative techniques and purposive sampling to gather data, through interviews and questionnaires, for both communication directors and community members. Thematic analysis was employed to reach the conclusion of the study. The study found that the North-West province needs to communicate more adequately with its communities, failing to achieve its objective towards its rural communities. Thus individuals within the development communication process are agents of change, not just recipients of a development initiative but active participants and contributors of knowledge and information.The study recommends that the use of smartphones and M-technology in all provincial departments would enhance their service deliveries and that the introduction of digital platforms such as the North-West Service Delivery App and the introduction of Personal Digital Assistants (PDAs) are essential for effective and efficient socio-economic and technological development of the rural communities within the province. The study will provide insight and add to the current discourse on the importance of ICT adoption for rural development.

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INTRODUCTION
A communication strategy can create an environment and atmosphere for sharing information between the provincial government and the community, thus creating a condition for public participation and aiming at meeting the expectations and needs of the community. Using ICT, all development processes could create a condition or environment for such initiatives to be effective and efficient. According to Zhang and Danish, ICT has influenced economic activities like trade, business, education, services,

entertainment, and research knowledge.[1] ICT helps interchange culture and exchange information and affects all aspects of modern society. Through communication and Information as well as Communication Technology activities, all development processes could create a condition or an environment for such initiatives to be effective and efficient. Communication is a process through which participants share and exchange information. Government communications are well placed as a strategic and planned process to ensure effective dialogue between government and communication.[2]

Lobelo emphasises the need to apply ICTs and social media to develop communication.[3] There is also an interest in focusing on the needs of communities and the benefits of new technologies rather than on the technologies available. According to Khan, access to technology is only the start of the process.[4] Local content and language are critical to enabling low-income people to access the benefits of the information revolution. The development in the ICT sector influences the norm and people's living standards by reducing distances while fastening business and commercial dealings, ultimately leading to investment opportunities and new jobs.[5] Furthermore, Cornelissen states that communication strategies involve bringing stakeholder reputation in line with the organisation's vision to obtain the necessary support for the organisation's strategy.[6] Communication thus outlines the relationship between government and its environment and the role of government in providing its citizens with meaningful and relevant information, which can relate to development processes.

The advent of new technologies pressured the government to change how they provide services to the people. The introduction of new technologies necessitates a move toward e-government/m-government. They need to foster a change that could bridge the digital divide, and this places the smartphone at the forefront of such development initiatives. According to Attwood, Diga, Braathen and May, in South Africa, an upper-middle-income country, the population categorised as individual "internet users increased from 5.4 % in 2000 to just 18 % in 2010.[7] These statistics have significantly increased in 2023, according to Cowling as of January 2023, there were 43.48% active internet and close to 25.8 million internet users in the country used social media, around 43% of the total population, moreover the majority of the population, specifically 78.7% utilised mobile devices to access their internet in 2022.[8] To overcome these low percentages, government intervention is frequently adopted, especially in rural areas, where it is not profitable for telecommunication operators to build infrastructure to promote the uptake of internet use in poorer communities.

Furthermore, according to Zhang et al., mobile phone users have rapidly increased due to liberalisation, developed the ICT infrastructure, and received huge investments that strengthened the economy.[9] Thus, a move towards projects that advance the need to use smartphones to develop an efficient communication system for rural communication, development and literacy.

According to Dupre, the concept of e-government describes the increasing offer of e-services by the government and the growing use by citizens.[10] The development of new ICTs and their appropriation by the private and public sectors have been through an acceleration that has never been experienced before, leading to significant changes within the government and their relationship with other actors (the citizens and businesses). Additionally, as Lobelo states, information leads to knowledge, and knowledge leads to

[1] Jianjun Zhang and Danish, "The Dynamic Linkage between Information and Communication Technology, Human Development Index, and Economic Growth: Evidence from Asian Economies," *Environmental Science and Pollution Research* 26, no. 26 (September 16, 2019): 26982–90, https://doi.org/10.1007/s11356-019-05926-0.
[2] Tshepo Mooki Mortimer Lobelo, "An Evaluation of North West Provincial Government's Communication System towards Rural Development: A Multisectoral Approach" (North-West University (South Africa), 2020).
[3] Lobelo, "An Evaluation of North West Provincial Government's Communication System towards Rural Development: A Multisectoral Approach."
[4] Abdul Waheed Khan, "Promoting Local Content," *WSIS PrepCom II Multi-Stakeholder Roundtable No. 2*, 2013, https://www.itu.int/net/wsis/docs/pc2/roundtables/rt2/khan.pdf.
[5] Zhang and Danish, "The Dynamic Linkage between Information and Communication Technology, Human Development Index, and Economic Growth: Evidence from Asian Economies."
[6] Joep P Cornelissen, "Corporate Communication: A Guide to Theory and Practice," 2023.
[7] Heidi Attwood et al., "Telecentre Functionality in South Africa: Re-Enabling the Community ICT Access Environment," *The Journal of Community Informatics* 9, no. 4 (2013).
[8] Natalie Cowling, "South Africa: Mobile Internet User Penetration 2020-2029," Statista, January 30, 2024.
[9] Jia Li et al., "Characterization, Source, and Retention of Microplastic in Sandy Beaches and Mangrove Wetlands of the Qinzhou Bay, China," *Marine Pollution Bulletin* 136 (2018): 401–6.
[10] François Dupré, "Fostering the Success of E-Government Initiatives by Improving User Take-Up," *ISCHANNEL* 9, no. 1 (2014).

development. Therefore, access to communication is essential to facilitate such knowledge and, in part, rural development initiatives.[11] Technological influence thus plays a significant role concerning access to information. On the other hand, Zheng et al. state that development discourse strongly influences government policies, international funding and allocation of resources that bring long-term processes of societal change, which in turn define, and inform short-term to medium goals.[12] The UN has identified 17 Sustainable Development Goals (SDG), which countries need to consider during development processes, using ICTs or technology that could facilitate these processes by streamlining information sharing and coordinating activities between agents.

This article thus analyses the collaborative and participatory efforts or relationships between all sectors within the North West province and all the programmes outlined by the Provincial government, particularly the Fifth Administration. There is also a growing acknowledgement that no single sector (public or private) can take exclusive responsibility for meeting the challenges of entrenched poverty and social exclusion. This article will also focus on the implementation of ICT in the development of rural areas within the North West and the improving service delivery vis the implementation of a multisector approach., thereby looking at the concept of ICT4D. The article will address the role of the internet and telecommunication (mobile/smartphones), their role in improving service with government communication, and the impact it could facilitate in introducing e-governance and e-government.

LITERATURE REVIEW

The article addresses how telecommunication tools (internet/smartphone) could enhance efficient and effective rural development programmes within South Africa, particularly in the North West province. Additionally, Prieto-Egido et al. point out that ICTs are considered a cross-cutting tool that contributes to meeting the global challenges set out in the SDGs.[13] They alluded the importance of telecommunication services during the Covid 19 pandemic, becoming essential in many areas, from access to basic services such as health care or education to finding a job or carrying out administrative procedures. Inequalities in access to telecommunication services are evident when comparing different nations and analysing the differences between rural and urban areas within countries. Xiong emphasises that the term ICTs' broad meaning refers to the convergence of telephone networks, the Internet, artificial intelligence, big data, and social media applications.[14] Thus ICTs are a powerful boost to organisational innovation capacity, i.e., the ability to enhance an organisation's competitiveness based on human resources and technology.

Bogdal-Brzezinska emphasises that the use of e-governance/e-commerce requires that consumers and enterprises meet the appropriate conditions, access to cheap computer infrastructure and cheap connection.[15] Also, the gap in access to information and communication technology is measured from the size of telephone networks to the Internet, the gap in ICT skills and free or cheap access to modern technologies and the gap in the use of ICT is calculated by the number of telephone conversations, the number of computer hosts, the number of people online, or the scale of the use of the Internet in business and politics.

Roztocki and Weistroffer, thus proposed a broad framework linking ICT and socio-economic development; it shows ICT, such as computing resources, Internet, mobile telephony, GPS, and WIFI, enabling business activities and services, such as e-commerce, e-governance, online social networks, and line teaching. [16] Socio-economics, in turn, influences government policies, business culture, and

[11] Lobelo, "An Evaluation of North West Provincial Government's Communication System towards Rural Development: A Multisectoral Approach."
[12] Yingqin Zheng et al., "Conceptualizing Development in Information and Communication Technology for Development (ICT4D)," *Information Technology for Development* 24, no. 1 (January 2, 2018): 1–14, https://doi.org/10.1080/02681102.2017.1396020.
[13] Ignacio Prieto-Egido, Teresa Sanchez-Chaparro, and Julia Urquijo-Reguera, "Impacts of Information and Communication Technologies on the SDGs: The Case of Mayu Telecomunicaciones in Rural Areas of Peru," *Information Technology for Development* 29, no. 1 (2023): 103–27.
[14] Feng Xiong, Leizhen Zang, and Yanyan Gao, "Internet Penetration as National Innovation Capacity: Worldwide Evidence on the Impact of ICTs on Innovation Development," *Information Technology for Development* 28, no. 1 (January 2, 2022): 39–55, https://doi.org/10.1080/02681102.2021.1891853.
[15] Agnieszka Bógdał-Brzezińska, "Information and Communication Technology (ICT) as a Source of Development of States and Regions in the Age of Globalization," *Journal of Geography, Politics and Society* 10, no. 1 (2020): 15–22.
[16] Narcyz Roztocki, Piotr Soja, and Heinz Roland Weistroffer, "The Role of Information and Communication Technologies in Socioeconomic Development: Towards a Multi-Dimensional Framework," *Information Technology for Development* (Taylor & Francis, 2019).

infrastructure, which generate development in business activities and services. To bridge the digital divide in South Africa, efforts and programmes were developed, such as access points for information, Public Information Terminals in Post Offices, Telecentres, schools, public libraries, and Thusong Community Centres. Many people in developing countries need access to these services because the access points are unavailable where they live. Lobelo shows that access to information is crucial as a partial solution to the high rates of illiteracy and unemployment because it empowers users to gain knowledge.[17] The Internet and, most importantly, mobile technology(smartphones) are tools to reduce the digital divide. The information provision process will require all societal sectors to play a role in developing communities.

Lobelo asserts that the issue of public participation, in the context of ICTs included within rural development initiatives, becomes the enhancement to shift government towards e-government.[18] E-government initiatives should clearly articulate community participation, each with different circumstances and environments, and therefore require different community interventions and information shared through community participation. Gajendra et al. support that e-government centres on government operations.[19] It is imperative now to extend the scope by including public engagement and participation. The movement to e-government is essential for the government to interact and communicate with people and business transactions. The critical slogan of e-government should be "citizen first". Therefore, the existing e-governance projects must focus on the nature and impact on users. Moreover, as with Colom, the increase in technology interdependence on the Internet means that the required digital skills are becoming more sophisticated and content-related, needing more strategic communication abilities rather than purely operational ones.[20]

Community members engaging in any development initiatives should be regarded as a source of knowledge, who play a significant role in defining objectives and being owners of the projects. Zheng et al. emphasise that individuals are not recipients of development benefits but agents for change, e-government and open government (based on a hypothesis that open government data could lead to greater transparency, accountability and citizen participation).[21] E-government and open government data initiatives often claim to empower individual agencies and encourage citizen participation. They further stated that ICT4D should take a point of departure with the following ideas: ICT4D is not about achieving a designated level of technology adoption or diffusion but a multifaceted, dynamic and contentious socio-technical process; ICT4D is relevant in all societies; ICT4D may give rise to unintended consequences and contradicting effects in development; Development is not linear progress, nor is there a one size fits all solution; It is vital to embrace development's multiplicity, heterogeneity, and openness as a concept and socio-technical process.

Quresh highlighted a paper by Asongu and Nwachukwu entitled "The Role of Openness in the Effect of ICT on Governance", which addressed both social and economic perspectives on development.[22] Their study investigated how openness influences ICTs penetration for improved government quality in sub-Sahara Africa from 2000-2012. The paper measures openness regarding trade and financial globalisation whereas ICT is proxied with mobile phone and internet penetration rates. There are four main findings in their paper. First financial openness has the edge over trade openness when combined with ICT to affect economic and institutional governance. Second, mobile phones have the edge over internet penetration in complementing trade openness for economic governance and financial openness for institutional governance. Third, effects on political governance are consistently adverse; and lastly, the interaction between openness and ICT facilitates governance. Based on the findings above, ICT, especially

[17] Lobelo, "An Evaluation of North West Provincial Government's Communication System towards Rural Development: A Multisectoral Approach."
[18] Lobelo, "An Evaluation of North West Provincial Government's Communication System towards Rural Development: A Multisectoral Approach."
[19] Sharma Gajendra, Bao Xi, and Qiang Wang, "E-Government: Public Participation and Ethical Issues," *Journal of E-Governance* 35, no. 4 (2012): 195–204, https://www.statista.com/statistics/972866/south-africa-mobile-internet-penetration/.
[20] Anna Colom, "The Digital Divide," *Information, Communication & Society* 23, no. 11 (September 18, 2020): 1706–8, https://doi.org/10.1080/1369118X.2020.1781916.
[21] Zheng et al., "Conceptualizing Development in Information and Communication Technology for Development (ICT4D)."
[22] Sajda Qureshi, "Perspectives on Development: Why Does Studying Information and Communication Technology for Development (ICT4D) Matter?," *Information Technology for Development* (Taylor & Francis, 2019); S A Asongu and J C Nwachukwu, "The Role of Openness in the Effect of ICT on Governance. African Governance and Development Institute (AGDI)" (Working Paper, WP/17/050, 2017).

smartphones, could be at the epicentre for the economic development of South Africa, particularly the North West Province, as information and economic opportunities are made available by users of particular networks. Governance is all about transparently placing communication and information sharing within service delivery mechanisms of both local and district municipalities.

Furthermore, almost all municipalities have a social media account as an elevated information-sharing platform, and most community members have smartphone access. Chipidza et al., looking at the community level, found evidence of widespread use of mobile phones to share information on prices among fishermen, which enables buyers to keep the price under control; hence, mobile phone technology can function as a "collectivist machines" rather than the individual artefact it commonly manifests.[23] The results again give credence to smartphones as beneficial towards trade openness, leading to positive rural development and improved service delivery.

Another study by Karippacheril et al. examined the diffusion of ICT4D artefacts to marginalised communities – the so-called Bottom of the Period" (BoP) consumers and concluded that the success of BoP ventures depends on the cooperation of operators, device providers, and service providers.[24] Madon in Roztocki et al. proposed a conceptual framework that attempts to explain the interaction between the Internet and socio-economic development in developing countries, and it suggests that the Internet has a mainly positive impact on four main factors; i) Economic growth, by economic productivity; ii) social well-being (alleviation of poverty); iii) political well-being viz. democracy; iv) the physical environment through sustainable development.[25] The Madon and Rozticki studies propose implementing a multisector approach to sustainable development that requires a cooperative and collaborative effort. All service providers in South Africa must be onboard to initiate e-governance and enhance economic productivity and rural development.

The study by Zhang and Danish focused on whether ICTs contribute to economic growth in countries with a better human development index than those with a lower index.[26] The study found that mobile phone usage contributed to economic growth under both human development indexes. Similarly, mobile phone usage is prevalent in South Africa in both indexes. The notion is to translate the usage of mobile technology into economic opportunities.

Moreover, Norton in Audi et al. provides a study that examines the link between telephone growth of microeconomic indicators in the case of 47 developing and developing countries.[27] The study finds that telecommunication has a positive and significant impact on economic development, and the telecommunication infrastructure reduces the overall transaction cost of firms. The South African motive for improving the digital divide was establishing telecentres in rural areas. However, with rapid technological developments and the omnipresence of smartphones in communities, there is a need for infrastructural development that creates conditions for WiFI usage.

A study by Rotondi et al., drawing on context-specific evidence on the effects of the digital revolution, provides empirical support for the idea that mobile phones are a vehicle for sustainable development on a global scale.[28] It does so by assembling a wealth of publicly available macro- and individual-level data, exploring a wide range of demographic and social development outcomes, and leveraging a combination of methodological approaches., which places a multisector approach as beneficial to such methodologies since the disparity in the socio-economic strata of South Africans. Macro-level analyses covering 200+ countries reveal that mobile phone access is associated with lower

[23] Wallace Chipidza and Dorothy Leidner, "A Review of the ICT-Enabled Development Literature: Towards a Power Parity Theory of ICT4D," *The Journal of Strategic Information Systems* 28, no. 2 (2019): 145–74.
[24] Tina George Karippacheril et al., "Serving the Poor: Multisided Mobile Service Platforms, Openness, Competition, Collaboration and the Struggle for Leadership," *Telecommunications Policy* 37, no. 1 (2013): 24–34.
[25] Roztocki, Soja, and Weistroffer, "The Role of Information and Communication Technologies in Socioeconomic Development: Towards a Multi-Dimensional Framework"; Shirin Madon, "The Internet and Socio-economic Development: Exploring the Interaction," *Information Technology & People* 13, no. 2 (2000): 85–101.
[26] Zhang and Danish, "The Dynamic Linkage between Information and Communication Technology, Human Development Index, and Economic Growth: Evidence from Asian Economies."
[27] Marc Audi and Amjad Ali, "The Advancement in Information and Communication Technologies (ICT) and Economic Development: A Panel Analysis," 2019; Seth W Norton, "Transaction Costs, Telecommunications, and the Microeconomics of Macroeconomic Growth," *Economic Development and Cultural Change* 41, no. 1 (1992): 175–96..
[28] Valentina Rotondi et al., "Leveraging Mobile Phones to Attain Sustainable Development," *Proceedings of the National Academy of Sciences* 117, no. 24 (2020): 13413–20.

gender inequality, higher contraceptive uptake, and lower maternal and child mortality. The findings suggest that boosting smartphone access and coverage and closing digital divides, particularly among communities, can be powerful tools to attain empowerment-related sustainable development goals, ultimately enhancing population health and alleviating poverty.[29]

With the evolution of technology and the expansion of mobile data networks, the capabilities of mobile phones have significantly increased from facilitating communication to providing information, delivering services and economic empowerment. According to Xiong, the existing literature demonstrates that the Internet can facilitate economic growth and rural development, raise labour productivity, thus increasing workers' income using computers, find Internet penetration immediately, and significantly promote innovation.[30] According to Rotondi et al., The digital revolution brought about by the diffusion of mobile phones has allowed several countries with otherwise poor infrastructure such as countries in sub-Saharan Africa and South Asia—to leapfrog communication technologies such as phone landlines and fixed internet connections (e.g., broadband).[31] As Audi et al. emphasise, the advancement in Information technology and Information Technology can impact development in several ways; ICT itself enhances economic growth with better and more advanced methods of production; ICT investment creates new employment opportunities and raises the masses well being at the aggregate level; and The economic returns the advanced information and communication technology are higher than investment.[32]

THEORETICAL FRAMEWORK

The theory used as a guideline for analysis is Development Communication and a Multisector approach to development. The three paradigms of development communication include the dominant paradigm (which emphasises a top-down approach), the Alternative (which deals with a shift in Western dependency) and the new paradigm (the emphasis is on two-way communication and community participation). Losa-Jonczck states that development communication in literature is a process based on dialogue communication, which involves a strategic approach to using communication methods and tools to cause social change.[33] The present article focuses on the latter paradigm as a theoretical base since it asserts that there must be active participation from the communities concerned for development. Focusing on the principles of Development Communication is on the responsive nature of development and community involvement, which creates a theoretical base to measure the quality of such engagement and involvement. This premise guides how the present article investigates the influence of ICT on development, still with the ambit of development communication. The study investigates how telecommunication, in the form of mobile phones/smartphones, could add value to rural areas' development and provide the basis for e-governance and economic openness. Thus, the articles look at the theory of ICT4D.

Chipidza & Leidner offer an assessment regarding the condition for success and failures of ICT4D projects, emphasising that the projects, particularly donor-funded ones, suffer chronic failure.[34] Despite limited evidence of their development impact, western-based aid agencies, researchers, and consultants continue to launch ICT4D projects. The reasons for failure are many, with a need for more infrastructure and skills in intended beneficiary communication prominent among them. The study evaluated the existing communication system and structure, focusing on how it renders communication within the province. It explored present communication networks based on their effectiveness in disseminating information, coordination, cooperation, and collaboration between provincial departments and municipalities.

Additionally, Chipidza and Leidner offer a summary of the perspectives and their defining characteristics of development; Development as increased freedom: In the ICT4D context, development takes place if the freedom of the target beneficiary increases; Development as increased economic productivity: Development took place when previously disenfranchised groups were afforded access to

[29] Rotondi et al., "Leveraging Mobile Phones to Attain Sustainable Development."
[30] Xiong, Zang, and Gao, "Internet Penetration as National Innovation Capacity: Worldwide Evidence on the Impact of ICTs on Innovation Development."
[31] Rotondi et al., "Leveraging Mobile Phones to Attain Sustainable Development."
[32] Audi and Ali, "The Advancement in Information and Communication Technologies (ICT) and Economic Development: A Panel Analysis."
[33] Anna Losa-Jonczyk, "Communication Strategies in Social Media in the Example of ICT Companies," *Information* 11, no. 5 (2020): 254.
[34] Chipidza and Leidner, "A Review of the ICT-Enabled Development Literature: Towards a Power Parity Theory of ICT4D."

ICT artefacts; Development as increased economic productivity: Development takes place when economic productivity rises due to an ICT intervention; and Development as improved well-being occurs when target beneficiaries feel more satisfied, happy, or fulfilled because of an ICT intervention.[35]

Moreover, Zheng et al. offer another approach, which they regard as the core component of ICT4D research.[36] They argue that ICT4D should answer how, under what circumstances and for whom ICTs, embedded in social practices and processes, lead to development. Additionally, Avgerou suggests that the engagement of ICT4D research with socio-economic development discourse is not confined to the debate on the general definition and approaches to "development".[37] It disperses across much broader literature that addresses transformation options in various domains of human activity. Also, Rothe states that one must consider the implications and the externalities involved when utilising ICTs as enablers in development implementation.[38] All these authors offer a picture of how ICT4D are significant towards social change and economic implications for community development and plays a significant role in eradicating the digital divide.

ICT has changed the style of communicating, how to find needed information, work, conduct business, and interact with government agencies. It affects our everyday lives and impacts microeconomic growth, further affecting society by embedding infrastructure and standard of living improvements. Roztocki et al. assert that ICTs play a significant role in all aspects of modern society.[39] Communication infrastructure is a critical element of the fourth adoption of technological innovation that can play a crucial role in driving the achievements of the Sustainable Development Goals as part of the so-called "fourth industrial revolution"(4IR). This revolution has the potential to dramatically increase national economies' productivity, as Prieto-Egido articulated.[40] For Qureshi, ICT for development is the implementation, use/adoption and diffusion of information and communication technologies that improve people's lives through the economic, social, and human conditions of a group of people, community and religion.[41]

Development should aim to eradicate poverty, which to Zheng, may or may not be achieved through digitalisation – most ICT4D research is applied in a specific domain, such as healthcare, e-government, or open development- each of these domains requires a nuanced understanding of the social-technical process.[42] For Heeks, the Technology of Change (ToC) is an outcomes-based approach that applies critical thinking to design, implement and evaluate initiatives and programmes intended to support change in their context.[43] He identified three generations of digital infrastructure for development; The first base is on mobile phones. The second is on the Internet, and the third will be around a ubiquitous computing model of sensors, embedded processes, near-universal connectivity, and widespread use of the intelligent application.

METHODOLOGY

The research employed a qualitative method to gather and evaluate data from departments and agencies concerning development initiatives within the North West Province. Thus the present article evaluated based on the generic role the North West Provincial government plays in providing service to its citizens and improving their livelihoods. Below are the problems identified (and addressed by this study) within the North West Province: 1) The North West provincial government is failing to communicate efficiently and effectively with its constituencies about development-related issues; more so, communities cannot

[35] Chipidza and Leidner, "A Review of the ICT-Enabled Development Literature: Towards a Power Parity Theory of ICT4D."
[36] Zheng et al., "Conceptualizing Development in Information and Communication Technology for Development (ICT4D)."
[37] Chrisanthi Avgerou, "Theoretical Framing of ICT4D Research," in *Information and Communication Technologies for Development: 14th IFIP WG 9.4 International Conference on Social Implications of Computers in Developing Countries, ICT4D 2017, Yogyakarta, Indonesia, May 22-24, 2017, Proceedings 14* (Springer, 2017), 10–23.
[38] Franz-Ferdinand Rothe, Leo Van Audenhove, and Jan Loisen, "ICT for Development and the Novel Principles of the Sustainable Development Goals," *Third World Quarterly* 43, no. 6 (2022): 1495–1514.
[39] Roztocki, Soja, and Weistroffer, "The Role of Information and Communication Technologies in Socioeconomic Development: Towards a Multi-Dimensional Framework."
[40] Prieto-Egido, Sanchez-Chaparro, and Urquijo-Reguera, "Impacts of Information and Communication Technologies on the SDGs: The Case of Mayu Telecomunicaciones in Rural Areas of Peru."
[41] Qureshi, "Perspectives on Development: Why Does Studying Information and Communication Technology for Development (ICT4D) Matter?"
[42] Zheng et al., "Conceptualizing Development in Information and Communication Technology for Development (ICT4D)."
[43] Richard Heeks, "ICT4D 3.0? Part 1—The Components of an Emerging 'Digital-for-development' Paradigm," *The Electronic Journal of Information Systems in Developing Countries* 86, no. 3 (2020): e12124.

participate in their rural development initiatives and 2) the North West provincial government (5th Administration) in failing to adequately implement development programmes and foster an inclusive process with the rural communities. The primary objectives of the article were to evaluate the North West Provincial communications systems in addressing and implementing rural development programmes, with the main focus being on the efficiency and effectiveness of communication by giving access to communities served by district municipality through the channels used on reach and cost and to determine the role of Information Communication Technologies' impact on rural development. As Creswell & Creswell describes it, a qualitative approach is employed to evaluate and understand the individual meaning groups ascribe to a human problem.[44] Government communications channels were analysed based on their effectiveness and efficiency in disseminating information and the extent of inter-agency coordination and collaboration. Channels used for community engagement were also evaluated and analysed as to whether they could be effective and efficient in improving cooperative governance. Structurally, there must be a link between communication and development.

Inductive reasoning was also employed, which starts not with a pre-established truth or assumptions but instead with an observation: people use specific instances or occurrences to conclude entire classes of objects and events.[45]The article evaluated communication within the province to discover that the North West province, particularly the fifth Administration, needed to communicate more efficiently and effectively with their constituencies.

Since the study investigated government communication, the relevant population were government officials or communicators and the communities that the government and municipalities serve. In choosing units of analysis, the research needed to identify the population that could best provide credible and reliable information regarding the government's role in rural development and who could thus be relevant in shedding light on communications processes and the implementation of development programmes. According to Bryman , the population is the universe of the units, such as people, nations, cities, regions firms from which the sample is to be selected.[46] In the case of this research, this would refer to employees in the government communication units, together with municipality communication directorates and the communities they serve.

A total of N=2 Directors (Head of Communication) were interviewed face to face as part of the semi-structured interviews. They were selected as they play a role in the communication process with the department and act as a conduit between other departments and the office of the Premier. They provide rural communication and development leadership and are part of the district and local communicators forums. Further, the following directors were all selected and interviewed: firstly, the Director of Intergovernmental Relations (N=1), who is responsible for the coordination and collaboration role of the North West province. Secondly, the researchers interviewed the regional director of the South African Local Government Agency (SALGA) N=1, who coordinates and collaborates between the district and local municipalities and assists in implementing the fifth Administration's developmental programmes. Lastly, the researchers selected and interviewed Directors N=4 within the Office of the Premier, all of whom have a leadership role in guiding the implementation of the developmental projects.

Convenience and purposive sampling were used in administering a questionnaire with community members from the following municipalities and in the following numbers: (N=40 DR Kenneth Kaunda, N=57 Ngaka Modiri Molema, N=44 Bojanala & N=41 Dr Ruth Mompati, Total N=182). A convenient sample or opportunity sample is drawn from units of analysis that are conveniently available.[47] This convenience depends on the availability of the respondents from time to time. Students and community members were necessary because of their valuable opinions, as they are part of the community service. The selected community members were identified during the visits to the district and local municipalities. They were selected based on their ability to provide information relevant to the implementation of the

[44] J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* , 5th ed. (London: Sage, 2018).
[45] P.D. Leedy and J.E. Ormrod, *Practical Research: Planning and Design*, 10th ed. (Boston: Merrill/Prentice Hall, 2021).
[46] Alan Bryman, "Sampling in Qualitative Research ," *Social Research Methods* 4, no. 1 (2012): 415–29.
[47] G M Trudie du Plooy and Gertruida M Du Plooy, *Communication Research: Techniques, Methods and Applications* (Juta and Company Ltd, 2009).

development programmes, collaboration and coordination between the municipalities and the respective communities.

PRESENTATION OF FINDINGS AND DISCUSSION

Table 1 below, provides a picture of the communication processes within the Premier's office, the highest office mandated to provide policy direction and align communication, improve service delivery, and provide a mandate for rural development initiatives within the province. The Premier's Office must adequately support effective and efficient communication between the provincial government and its constituencies. Three other municipalities confirmed a problem in articulating and implementing the programmes to enhance community participation. Participatory approaches, in conjunction with ICTs, being the usage of innovative technology through smartphones as part of a development communication strategy, have the potential to contribute to the process of giving a voice to people experiencing poverty, helping them to express themselves and enabling them to speak up for themselves and assisting them in active participation in governance processes and lastly, establishing economic openness.

Table 1:Results and summary of the interviews with the Premier's office

Positions	Director: Corporate comms	Ass Director: corp comms	Director: Media Relations	Premier: Chief comm officer
Challenges	English proficiency Staff not very product oriented Brand articulation by staff Change resistance: Internal politics Forums and meeting attendance	Insufficient budget Collaboration between departments	No collaboration with the GCIS Lack of trust from the national media Lack of national media involvement in provincial activities Coverage of negative stories Social media policy not approved	No coverage of work on national media or platforms Departments not reaching out to communities Access to government information and services

(Sources: Lobelo, 2020)

Table 2 below, provides data regarding the success and challenges faced by the provincial department in achieving their objectives and communication with the province. The provincial government is responsible for social services and provides governance and Administration. The national government is responsible for policy development (e.g. NDP Vision 2030). The provincial government is responsible for translating those guidelines, for instance, the development of the Integrated Development Plan (IDP), which could include the implementation of ICTs, which have smartphones as an integral part of the plan. All communication heads have identified provincial, district and local communicator's forums as platforms for coordination and collaboration. Even with these platforms, they all indicated they could be more effective and efficient in executing their mandate.

The critical challenge (identified by consensus) is the need for more budget, as all respondents stated that insufficient budgets were the primary concept that impeded departments from executing their mandate and objectives. Identification of budget as the most prominent problem and constraint complicates matters as there have been reports of departments losing money through corruption and maladministration of funds through irregular expenditure and the tendering process. The main challenge also emanating from all the local/districts is budgeting. All mentioned that they needed more budget to execute their mandate. The results from Bogdal-Brzezinska noted that introducing e-government presupposes that the consumers (communities) meet the appropriate conditions for rural, socio-economic and technological development.[48] The primary prerequisite is cheap computer infrastructure and cheap

[48] Bógdał-Brzezińska, "Information and Communication Technology (ICT) as a Source of Development of States and Regions in the Age of Globalization."

connection, which places this problem squarely within the ambit of intelligent technology since, as this research strongly argues, smartphones are the key to the improvement and effectiveness and efficient communication processes within the North West Province.

Table 2: Results and Summary (Provincial Departments/Agencies)

Department	TOURISM: Dir: Communication	DEPT READ: Director: Communication	Inter-Government: Director	Regional Director: SALGA
Challenges	Budget Lack of understanding of communication (Strategic) From administrators to politicians	Budget, lack of the role of communication Lack of coordination between DEPTS Lack of interpretation of policy	budget lack of policy articulation cadre deployment lack of collaboration between government departments and the private sector	Budget vacant position in the strategic post unqualified personnel in strategic posts policy articulation relating to the Setsokotsane Programme

The article's key finding is the absence of communication as a strategic tool in improving service delivery, "most principals do not understand the role of communication, nor do they see its strategic nature". This absence negates the role of communication in fostering a positive relationship with its stakeholders, creating a top-down approach towards stakeholder management. Data from municipalities clearly show that the executive needs to be aware of the role of communication, as they assume that the task of communicators is restricted to PR and information functions such as taking pictures and events management. Results from Nogbal-Brzezinska show that the requirement to assess the gap in access to information and communication technology measured from the size of telephone networks to the Internet casts light on the gap in ICT skills. The data highlights the challenge experienced by the provincial department in having unskilled personnel within their ranks who need to articulate communication policy and its strategic nature. The lack of skills creates a lack of synergy and leads to ineffective communication when liaising with constituencies. Based on this, there is a general sense of municipalities needing to communicate more adequately, understand the needs of the people, and fail to communicate projects and objectives properly.

The other issue compounding the municipal communication system is overriding communication and social media policies. Everyone uses the municipal Facebook/Twitter pages as their mouthpiece or uses them to promote party politics. All Communication heads from municipalities indicated that the executive committee (Mayor and Municipal Manager) needs to understand the strategic nature and importance of the communication unit. They see it as a unit responsible for only photographs and organising events, which results in the need for more understanding of the role and strategic nature of the communication unit by the executive.

Another finding identified by the study is the need for more collaboration and coordination of activities and better intergovernmental relationships within the province. The departments need to coordinate their activities and collaborate. Each works independently and parallels the other departments, which causes duplication of services within the same constituency. The issues identified as challenging coordination and collaboration are the ineffectiveness and inefficiency of the district and local communicator's forums towards rural development. There must be collaboration from different departments to implement the 2030 national development plan vision effectively and efficiently. The other factor identified was a lack of a calendar of events: most municipalities stated there is a requirement for a calendar of events to allow for proper planning of projects for coordination and collaborative measures.

Another challenge identified is the issue of ward councillors who need to be united and skilled because of party politics (cadre deployment). This created an issue relating to the coordination of activities and service delivery. The other major challenge is the efficiency of human resource appointments; most people are appointed as "communication officers", while in other districts, these officers are not familiar

with communication processes. They function as administrators/clerks hired under the guise of communicators.

According to Lobelo, development communication is about communicating developmental messages to people to improve their economic and social conditions.[49] A multi-channel and sector strategy would ensure all-inclusive and a wider reach, which will, in turn, have a lasting effect. According to Kumar, the success of development communication depends on teamwork, consultation, and collaboration.[50] Coordination between development agencies and communication media agencies would facilitate the effectiveness of the development communication strategy.

Each municipality is expected to draft an Integrated Development Plan that aligns with the National Development Plan Vision 2030. The IDPs are coherent action programs that address an integrated vision for the future. Based on the research, most municipalities still need an existing IDP. The idea is to provide the municipalities with a description of future development goals, and the plan also emphasises community participation. The role of communication units is to facilitate coordination and collaboration of rural development initiatives within the North West Province. For rural development to be achieved and realised, it requires a coordinated and collaborative effort from all stakeholders.

The data from the questionnaire from the community also does not paint a positive picture of the achievement of the municipalities in addressing rural development issues. All the municipalities indicated that their main objective is to liaise with the communities and stakeholder management, which emphasises a two-way relationship formulated between the municipality and their constituencies. It emphasises the continuous dissemination of information and sharing of knowledge. Based on the data (60% Kenneth Kaunda, 70% Bojanala, 81% Ngaka Modiri Molema & 80% Ruth Mompati), believe that the municipalities are not performing their objective and mandate effectively and efficiently. The provincial government has identified the Semphete newspaper as a flagship for community engagement and sharing information tool, but the data (92% Ruth Mompati, 93% Ngaka Modiri, 93% Bojanala and 78% Kenneth Kaunda district) from the community respondents indicate that it is not an effective tool in communicating with the constituencies. Based on the above data it could be noted that the North West provincial government and its municipalities are not effective in executing their objectives and mandate, nor can they effectively and efficiently communicate with their communities.

RECOMMENDATIONS

Based on the findings and discussions, the provincial departments and municipalities should only pull in some directions, thereby minimising progress. Coordination and collaboration enhance synergies between interventions and increase the efficiency of the organisation's operation. Based on the interview between the Director of Intergovernmental and SALGA, the departments of the provincial government and municipalities need to coordinate and collaborate their activities in providing service and communicating effectively and efficiently with communities. The reason identified is the need for more coordinators, which is challenging for the province. The remedy is the move towards M-government, which involves the operation and extension of e-government and using the Internet (Smartphones) to provide effective and efficient service delivery for economic openness and rural development.

The provincial departments should enhance their digital platforms using ICTs (Smartphones). Citizens could directly report burst water pipes to municipalities, potholes and any other services related to the enquiry to the established municipal service delivery call centres. The unique advantages of M-technology increase the opportunities for the government to provide more, better, and different types of services to citizens. According to Trimi et al. in Lobelo, M-government, based upon the smartphone (herein inclusive of "North West Service Delivery App"),[51] is a valued-added e-government because it offers the following advantages; It implies the delivery of government information and services. Citizens can get immediate access to certain government information and services on an anywhere-anytime basis; M-technology may be the best solution to overcome internet connectivity problems and digital divide

[49] Lobelo, "An Evaluation of North West Provincial Government's Communication System towards Rural Development: A Multisectoral Approach."
[50] Rajesh Kumar, "Development Communication: A Purposive Communication With Social Conscience-An Indian Perspective.," *Global Media Journal: Indian Edition* 2, no. 2 (2011).
[51] Silvana Trimi and Hong Sheng, "Emerging Trends in M-Government," *Communications of the ACM* 51, no. 5 (2008): 53–58.

issues faced by e-government applications; Compared with wired networks, wireless networks appear to be a more cost-effective choice for countries with dense populations and rugged terrain; M-government applications can help avoid problems faced by some countries, such as corruption and low productivity of governmental agencies; and M-government increases the efficiency and effectiveness of government employees with the help of m-technology. Government employees can access the information needed in real-time and update records on the spot.

Chipidza and Leidner offer specific practical solutions to the issues identified.[52] These include investing in funds towards infrastructure building, construction and proper effective implementation of telecentres and e-learning centres, through which an organisation can fulfil their social responsibility obligation by offering accessible technology services to marginalised communities. They further point out that lack of infrastructure, in this case, e-government, has the potential to hamstring the implementation of various ICT4D projects, e.g. health information systems and media sharing applications, as well as E-procurement systems for rural communities and e-government.

Creating a "North West Provincial Service Delivery App" would replace or act as an alternative to the ongoing "Pua le Puso" call centre programme. Community members can download and have access to government information and be able to provide relevant information about their own developmental needs. Mobile devices (smartphones) could be used as a cost-effective way to connect departments, communities, and agencies, providing a discussion platform for social media applications or any matter relating to development. The North West Provincial government's role is to provide direction in a multisectoral approach by developing and exploring possibilities of permanent/sustainable development and guaranteeing the positive socio-economic impact of rural development programmes. Policy guidelines must be established for implementing ICT-driven rural development initiatives and moving towards implementing M-government/E-government.

Municipality-developed IDP to assist in implementing their development project are also in line with the National Development Plan. For the IDP to be effective, a multisector approach must be employed, using ICT to create access and a platform for community participation. As we argued, e-government initiatives should articulate community participation. Each community has different circumstances and environments, requiring different kinds of community intervention and information through community participation. The movement to e-government is essential for the government to interact and communicate with people and conduct business transactions. Essential to e-government should be "citizen first", Batho Pele concept. Therefore, the existing E-governance (ICT4D) projects must focus on the nature and impact on users.

CONCLUSION

The Internet has changed the face of communication as it has made convergence of all mediums possible by creating space and a cost-effective way of creating a participatory platform for sharing information online. If government services could be available online, it would improve the efficiency and effectiveness of the government's service delivery. E-government provides for such a situation or a possibility, with information available online and accessible to communities via the internet access digital villages can provide. An explosion in the use of M-technologies, such as mobile phones, laptops, and PDAs to connect to wireless networks, has enabled the government to move t from e-government to M-government. The government can only realise a cost-effective development intervention if communities choose their intervention means significantly. The government should also be innovative in using technology (and its devices) to share information. Social media is a means of communication bedevilled by the barrier of lack of infrastructure since networks need to be accessed, and those that exist need to be improved.

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[52] Chipidza and Leidner, “A Review of the ICT-Enabled Development Literature: Towards a Power Parity Theory of ICT4D.”

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