

Indigenous knowledge systems, situated and contextual learning: unlocking collective human digital capabilities and competencies for Global South communities in the digital era

ICEGOV
2024 PRETORIA
SOUTH AFRICA

KGOPOTSO MAGORO
UNIVERSITY OF THE WITWATERSRAND



Problem statement

Despite the positive impact of information and communication technology for development (ICT4D) in bridging the digital divide, rural communities in the Global South, encounter challenges when accessing digitally enabled public sector services (e-government services). **Contributing factors:** *Lack of access to devices and digital skills, absence of affordable and quality internet connectivity and **limited involvement of rural communities as co-creators of digital services.***



Inspired by the philosophy of Sankofa (Learning from the past), my research investigates the role of cultural knowledge systems in rural communities in the digital era.

Case study location: Mamaila Tribal Authority (MTA), Limpopo Province, South Africa. MTA is part of the **Queen Modjadji Dynasty**, known as the Balobedu people.

Drawing on the experiences of the Balobedu people, I aim to provide insights into how IKS can serve as catalysts in unlocking contextual digital skills for inclusive e-government.

Within the decolonisation framework, knowledge systems that were previously marginalised have been re-appropriated to inform policy, agriculture, and climate change management strategies [2,5].

For example, the Ghanaian government introduced the Sankofaism policy to reclaim historical elements considered relevant to the present era, framing cultural heritage as fundamental to the development, self-identity, and legitimacy of the Ghanaian nation-state [7]. The Sankofa philosophy also influenced and shaped the Ghanaian tech environment [10].

Although RSA does not have a specific IKS philosophy that drives digital transformation, the government recognises the role of cultural heritage and IKS in driving economic and social change (NDP 2030 vision, and the report of the Presidential Commission on the Fourth Industrial Revolution (PC4IR)).

The National E-Government Strategy: promote the use of indigenous languages in digital applications to promote the uptake of e-services.

However, the National Digital and Future Skills Strategy is silent on the role of IKS in digital skills initiatives.

Theoretical framework

I argue that excluding IKS in digital skills strategies hinders the development of digital capabilities and competencies for inclusive e-governance.

To advance my argument, I ground my work in Hanna's integrated digital transformation framework illustrated in Figure 1. The framework advocates for governments to take a holistic view of national digital transformation as a highly interactive ecosystem [4].

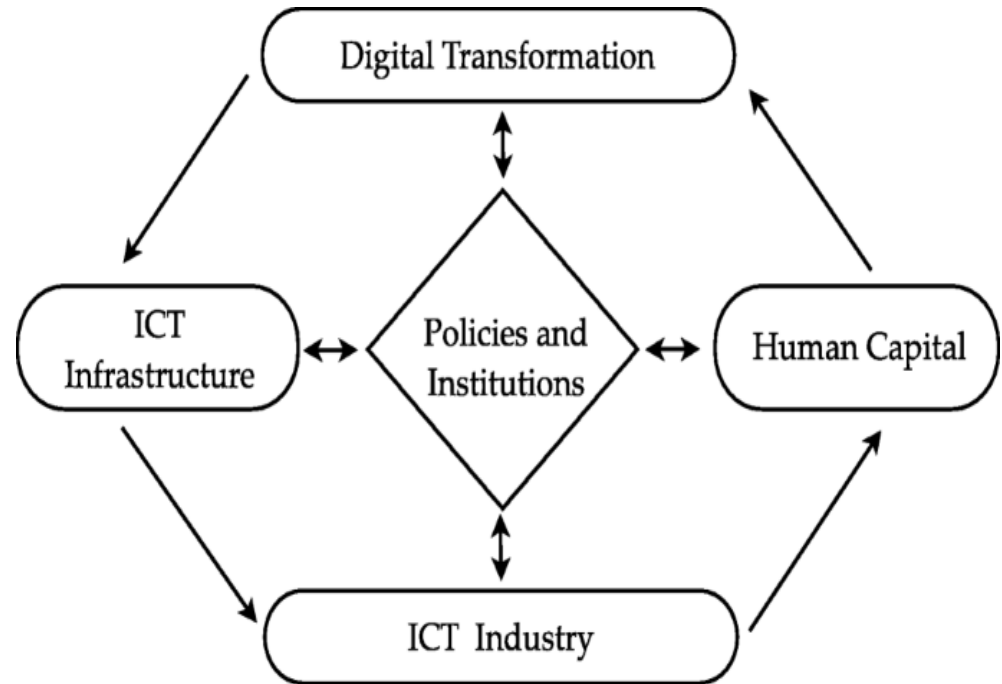


Figure 1: Hanna's Digital transformation framework

Human capital: “Unless there is a transformation in capabilities, access to ICTs, requisite skills and knowledge, the digital transformation will merely exacerbate existing inequalities”[8].

Governments, the private sector, and NGOs implement capacity-building initiatives to close the divide. However, scholars critique some of these interventions as they often prioritize digital literacy [9]. **Empowering citizens to be effective consumers.**

- Building human capabilities requires a shift towards comprehensive digital skills encompassing 21st-century skills that include core **(technical proficiency, information management, communication, collaboration, creativity, critical thinking, and problem-solving)** and contextual skills that involve understanding and navigating the **legal, ethical, and cultural aspects** of ICT use amongst others [12].

Cultural approach: unlocking collective digital human

I contribute to the discourse by suggesting a paradigm shift towards holistic system thinking and a culturally embedded digital transformation illustrated in Figure 2 encompassing the following dimensions:

- **D1: Contextual and culturally embedded knowledge systems (cross-cutting theme)**
- D2: Inclusive adoption and usage
- **D3: Digital skills**
- D4: Appropriate digital infrastructure
- D5: Digital leadership

This presentation focuses on **dimension 3 and its interaction with D1.**

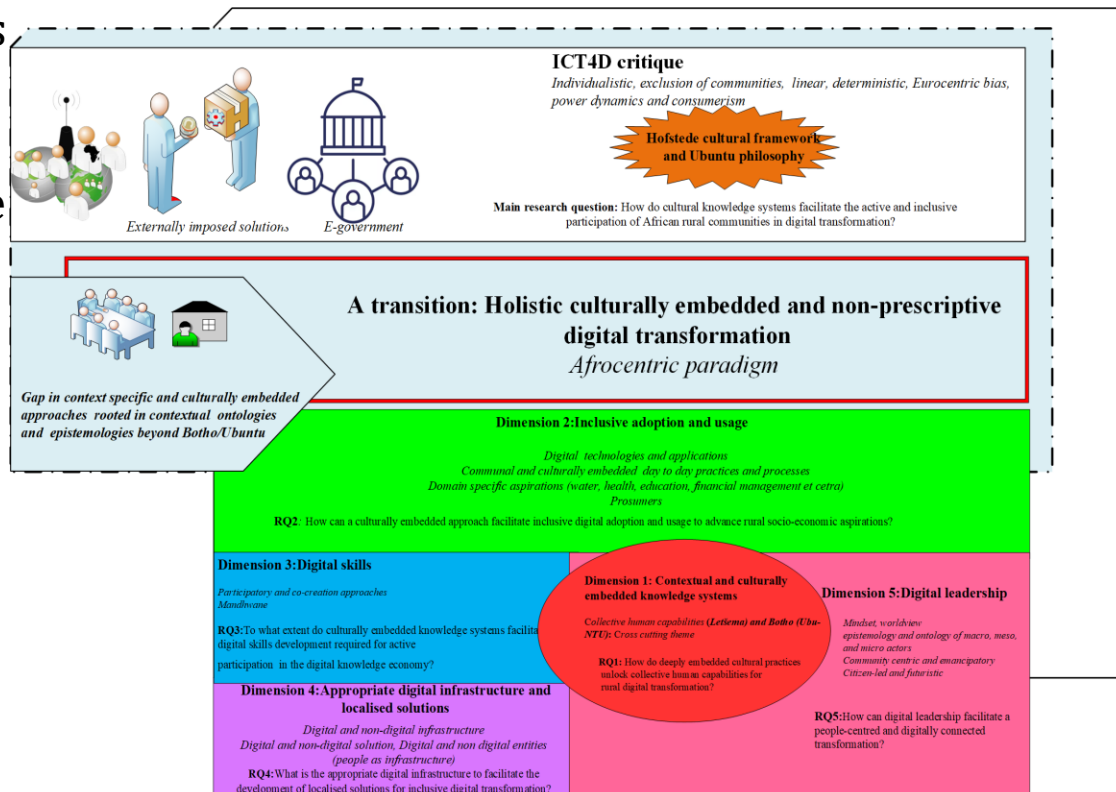


Figure 2: Research analytical framework adapted from Hanna

Researchers in ICT4D have effectively used the philosophy of Ubu-NTU/Botho to contextualize their work, highlighting the importance of integrating cultural frameworks in digital innovations [1].

Beyond Ubu-NTU: context-specific practices

- **Mandhwane:** An African pedagogy for learning by doing and skills transfer used by Southern African communities, including the Balobedu people before the introduction of Western education.
- **Letšema:** A cultural practice that promotes voluntary collaboration to unlock collective capabilities.

I employed a mixed-method case study, using a social constructivist lens and Afrocentric paradigm, to explore the extent to which culturally embedded knowledge systems could facilitate the development of digital skills required for active participation in the digital knowledge economy.

Data collection and analysis

- One focus group discussion with representatives of the MTA development forum. Two community workshops with a total of 51 participants representing members of Maola groups.
- Household survey as a preliminary tool to identify digital patterns, aspirations, cultural practices, and processes in the MTA (51 households using a systematic sampling method). Given the low response rate, I enhanced the credibility of the survey findings by inviting the community members who participated in the community workshops to review the findings.
- I employed a blended approach to data analysis, combining elements of both deductive and inductive reasoning.

Findings and discussions

- The community of MTA is facing the loss of cultural knowledge systems and the need to preserve cultural heritage memory.
- The MTA community relies on its social capital, expressed as Botho in adversity to support households facing adverse situations.
- **Example of cultural practice: Leola funeral scheme.** A community-based financial services system) used by the community of MTA to provide financial and non-financial (assets and human resources) support to bereaved families.
- The community highlighted that the practice encounters difficulties in record-keeping and that technology could assist them to digitise their records and eliminate the spread of fake news specifically death cases.



Figure 3: Bohwa Bja Rena (e-heritage prototype)

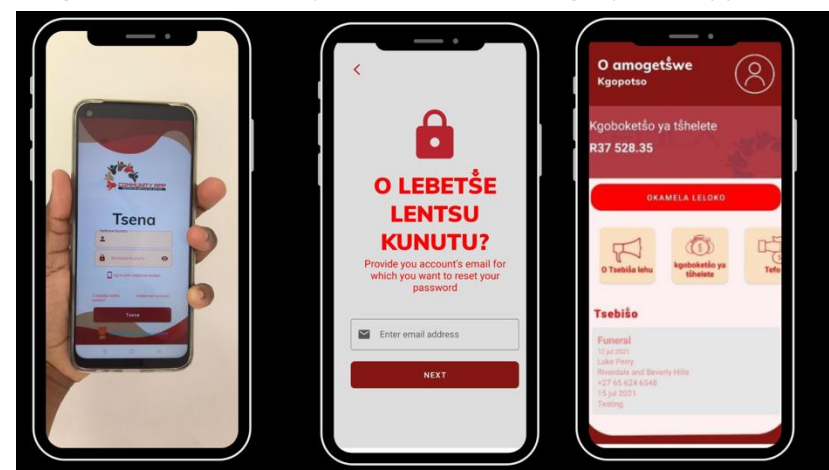


Figure 4: Leola funeral scheme prototype (Fintech)

The experiment revealed the presence of intergenerational tension, power dynamics, and a lack of trust, regardless of the UBU-NTU value system. Despite the reported challenges, the study found that the community possesses some existing capabilities and competencies.

Digital literacy

- During the testing of the prototypes, **the elderly members of the community** demonstrated informational capabilities [3] by identifying missing information on the cultural artefacts uploaded on the website, further expressing a strong desire to access comprehensive cultural information.

“The website is like our own Google.”

- They pointed out that the website could help the community in **transferring knowledge to the children** and also manage graveyard information, as some families could no longer locate the graves of their loved ones, demonstrating **problem-solving and adaptability**.



Figure 3: The first two pictures illustrate community members during the testing of the Fintech prototype in 2021.

Digital skills

- The web development activities included **content curation** (videography and photography) by **youth with no prior experience**.
- While people were willing to learn and develop skills, in some cases there was tension between **content curators and young cultural producers**.
- Regarding the Leola app, **the elders identified areas of vulnerabilities that could emanate from digitalising the Leola process**, demonstrating that although they might lack the skills to navigate digital applications, they possess the contextual skills critical for ethical tech [13].
- The tension between different generations and among content curators and local producers highlights the **need for transparency and ethical digital transformation**.
- The tension observed offers opportunities for communities like MTA to move from reluctance to share content to establishing secure environments where members can lead their content development **while safeguarding their intellectual property rights**.

Digital roles and ethical digital transformation

- Older people played an active role in shaping contextual technological innovation, influencing ethical tech by emphasising the importance of decentralised decision-making.
- The executive members of Leola collectively peer-reviewed and validated the Leola business processes and identified potential areas that could be digitalised.
- Unemployed youth assumed the prosumer role by participating in the co-design and content development for the Bohwa Bja Rena website.

The Mandhwane pedagogical approach

- Situated the digital skills within the epistemology of the participants by relying on the use of local lexicons and practices in facilitating skills transfer, learning, and knowledge exchange (**Totems, proverbs, family praise songs**).
- Facilitated a collaborative environment by actively involving various generations in the action research and grounded the digitalisation narratives in existing communal innovations based on the values of Botho and Letšema, which enhanced the intergenerational co-creation process through Mandhwane (learning by doing).

The approach provided a holistic understanding of facilitating digital transformation in the community by first understanding communal ways of being, learning, doing, and leadership and their interplay with environmental and psychological factors within the digital transformation ecosystem.

An examination of how these elements shape collective actions (Letšema) and innovations (Leola) facilitated the unlocking of digital capabilities and competencies for inclusive and contextual/localised e-governance.

While the case study of MTA did not analyse the participation of the community in government-led interventions, the insights gained hold significant relevance for the formulation of inclusive e-government strategies.

The case study provides the following insights:

- Despite some initial lack of trust in using digital solutions to manage communal processes the community understands the importance of digitalisation and acquiring digital skills to enhance communal processes.
- There is significant potential to enhance e-governance participation by anchoring digital transformation narratives in existing communal innovations. This approach can lay a strong foundation for the adoption of government-led initiatives.
- Integrating IKS, cultural heritage, and identity into digital skills interventions is essential for developing the capabilities and competencies needed to support inclusive e-government. Furthermore, understanding communal values, aspirations, fears, and decision-making processes is crucial for ensuring that these interventions are culturally relevant and contextually appropriate.

In conclusion, I propose that scholars develop holistic and culturally embedded inclusive e-governance frameworks by adopting contextual philosophies, practices, and processes. This approach can serve as a foundation for digital inclusion and access for marginalised populations as well as unlocking creativity and innovation.

- The methodological approach for this study was grounded in the principles of learning by doing and a lifelong approach. Consequently, it could face limitations when implemented within institutional frameworks that are bound by fixed timelines and templates.
- The constructivist approach in this study implies that the findings are specific to the MTA.
- Lastly, given the limited generalisability of the study, future research could explore comparative analyses across diverse cultural contexts to examine the role of cultural practices in facilitating inclusive e-government services and active digital transformation by rural communities in the Global South.

References

1. Abubakre, M., & Mkansi, M. (2022). How do technologists do “ICT for development”? A contextualised perspective on ICT4D in South Africa. *European Journal of Information Systems*, 31(1), 7–24. <https://doi.org/10.1080/0960085x.2021.1978343>
2. Cannarella, C., & Piccioni, V. (2011). Traditionations: Creating innovation from the past and antique techniques for rural areas. *Technovation*, 31(12), 689–699. <https://doi.org/10.1016/j.technovation.2011.07.005>
3. Gigler, B.-S. (2011). Informational capabilities: The missing link for the impact of ICT on development. World Bank. <https://openknowledge.worldbank.org/handle/10986/19011>
4. Hanna, N. (2018). A role for the state in the digital age. *Journal of Innovation and Entrepreneurship*, 7(1), 1–16. <https://doi.org/10.1186/s13731-018-0086-3>
5. Masoga, M. A., & Shokane, A. L. (2019). Viewpoint: Indigenous knowledge systems and environmental social work education: Towards environmental sustainability. *Southern African Journal of Environmental Education*, 35 (1), 1-9. DOI: 10.4314/sajee. v35i1.14
6. Morte-Nadal, T., & Esteban-Navarro, M. A. (2022). Digital Competences for Improving Digital Inclusion in E-Government Services: A Mixed-Methods Systematic Review Protocol. *International Journal of Qualitative Methods*, 21. <https://doi.org/10.1177/16094069211070935>
7. Pijnaker, T., & Spronk, R. (2017). Africa’s legends: Digital technologies, aesthetics and middle-class aspirations in Ghanaian games and comics. *Critical African Studies*, 9(3), 327–349. <https://doi.org/10.1080/21681392.2017.1371617>
8. Qureshi, S. (2023). Digital transformation for development: A human capital key or system of oppression? *Information Technology for Development*, 29(4), 423–434. <https://doi.org/10.1080/02681102.2023.2282269>
9. Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital Literacy: A Review of Literature. *International Journal of Technoethics (IJT)*, 11(2), 66-92. DOI: 10.4018/IJT.20200701.oa1
10. Slater, J. (2019). Sankofa—the need to turn back to move forward: Addressing reconstruction challenges that face Africa and South Africa today. *Studia Historiae Ecclesiasticae*, 45(1), 24 pages. <https://doi.org/10.25159/2412-4265/4167>
11. van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, 72, 577–588. <https://doi.org/10.1016/j.chb.2017.03.010>
12. van Laar, E., van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2022). Developing policy aimed at 21st-century digital skills for the creative industries: An interview study with founders and managing directors. *Journal of Education and Work*, 35(2), 195–209. <https://doi.org/10.1080/13639080.2022.2036710>



magorokd@gmail.com

ICEGOV
2024 PRETORIA
SOUTH AFRICA