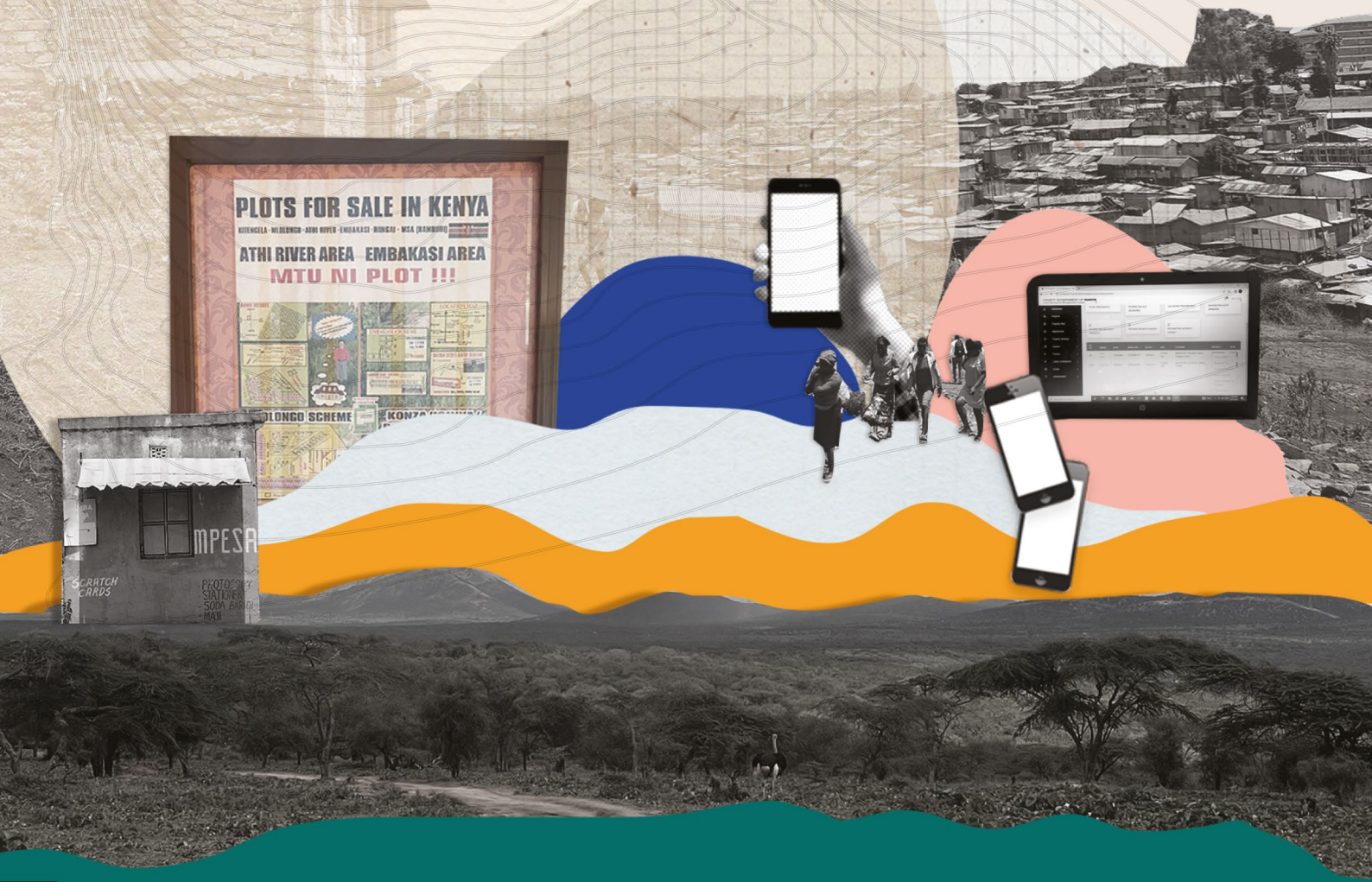
Department of Geography

UCL

POLICY DIRECTIONS FOR LAND DIGITALISATION



REGIONAL FUTURES

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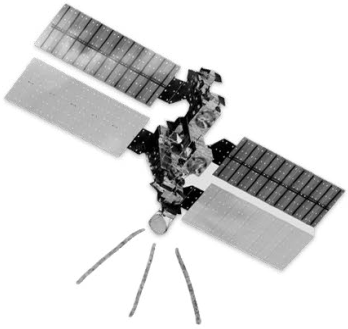
EXECUTIVE SUMMARY

The digitalisation of land management and administration is now a global reality. Governments at all levels – national, sub-national, and local – are implementing ambitious strategies to transform land-related administrative processes through digital technologies. Physical land records are increasingly being converted into electronic formats, and digital mapping and surveying techniques are becoming essential for ensuring land and property security. However, this shift towards digitisation, digitalisation, and automation in land administration varies significantly across regions. The approaches taken depend heavily on local governance conditions, administrative timelines, financial resources, and citizens' acceptance.

In the global South, the digitalisation of land management has grown in scope and complexity, presenting numerous opportunities, uncertainties, and limitations. In the African context, for instance, digitalisation efforts include creating nation-wide land administration systems, issuing digitally secured land deeds, and automating building permit issuance. Collaboration among local authorities, private sector actors, and civil society organisations has driven the development of strategies to streamline and expedite land registration, urban planning, and development control, as well as enhance system interoperability. In East Africa, countries like Kenya, Tanzania, Rwanda, and Uganda are steadily implementing digital initiatives to improve territorial management and land-related services.

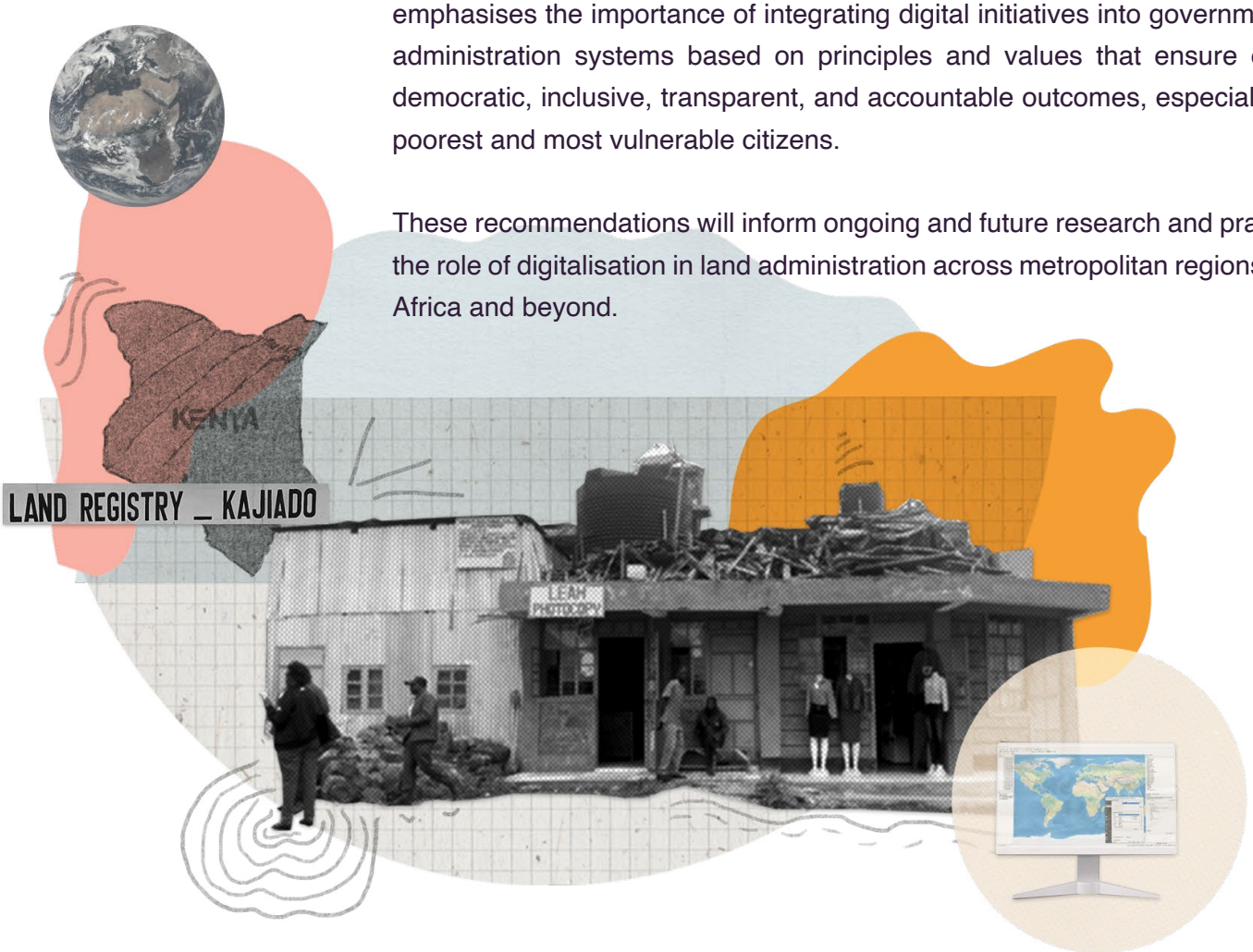


The 'Digital technologies for land administration' event was both stimulating and insightful, facilitating meaningful conversations about the role of digitalisation in land governance. As the use of digital technologies expands within governmental institutions and corporations, participants shared their expertise on the intersection of digital tools (wwith land administration at multiple scales. The event highlighted the challenges and opportunities of digitalisation in delivering effective land administration services across Africa and the global South. Moreover, discussions underscored the role of sub-national governance structures in implementing digital technologies for just land administration, considering the social, political, and economic implications of administrative devolution and centralisation.

The roundtable also provided an opportunity to formulate a set of recommendations for supporting digital land administration, particularly in urbanising regions of Kenya and Africa. These recommendations, presented in this document, aim to serve as a toolkit for government officials and professionals working at the intersection of digital land management in the global South.

This document highlights the key factors necessary for effective land administration using digital technologies and modern tools. It offers lessons learned by stakeholders from various regions who have faced numerous challenges and emphasises the importance of integrating digital initiatives into government land administration systems based on principles and values that ensure efficient, democratic, inclusive, transparent, and accountable outcomes, especially to the poorest and most vulnerable citizens.

These recommendations will inform ongoing and future research and practice on the role of digitalisation in land administration across metropolitan regions in East Africa and beyond.



DIGITALISATION OF LAND ADMINISTRATION IN KENYA:

Background, current challenges, and future directions

In Africa, digitalisation has become a central element in national, sub-national, and local policies aimed at enhancing and streamlining land management and administration services. In Eastern Africa, countries such as Kenya, Tanzania, and Rwanda have actively implemented numerous digital initiatives to improve land-related processes and achieve land tenure security on a national scale. These state-led efforts are guided by several international instruments and frameworks, including the Framework and Guidelines on Land Policy in Africa, the African Union's Agenda 2063, the African Union's Digital Transformation Strategy for Africa 2020-2030, and the African Continental Free Trade Area (AfCFTA). Despite their diversity, these instruments have been crucial in directing countries toward incorporating digital governance programs across all economic sectors, thereby promoting economic growth and development. Notably, land digitisation has reinforced the concept of land as a crucial enabler of economic development and social progress.

In recent years, Kenya has emerged as a regional leader in the digital economy. Public and private investment in digital innovation across various sectors has earned the country the moniker 'Silicon Savannah.' From the rapid adoption of the online payment method M-Pesa to the development of flagship ICT projects like Konza City, digitalisation has permeated multiple sectors in Kenya. Ambitious investments from public entities, transnational agencies, and private corporations have integrated digital technologies and applications into the daily lives of the average Kenyan citizen. Despite facing contradictions and contestations, Kenya's

digital landscape is now a regional reference and an example for other developing countries.

The progressive assembly of the Kenyan digital state is evident in the growth of public digital infrastructure, the proliferation of digital systems such as websites, e-government portals, and mobile applications, as well as the expansion of ICT legal and policy frameworks and ICT education programs across different levels of governance. At the county level, substantial investments in digitalisation have been aligned with key development goals and aspirations captured in local development plans, such as the County Integrated Development Plans (CIDP).

Reflecting a broader trend towards national digitalisation, Kenya's land sector has rapidly adopted digital technologies to create informational infrastructures and provide public services. A key example is the development of a nationwide land information management system, popularly known as Ardhisasa, initially developed by the National Land Commission from 2012 to 2016, and since 2016 by the State Department of Lands and Physical Planning. Initially tested in Nairobi County and expected to be deployed in the remaining counties, Ardhisasa's development has involved concerted efforts among various actors and across different scales. This initiative has necessitated significant actions, including capacity building among stakeholders, mobilising financial resources, and raising awareness among land professionals, landowners, civil servants, and other key stakeholders.

Nairobi peripheries, June 2024. Image by: Ayona Datta

Nairobi peripheries, June 2024. Image by: Ayona Datta

Remarkably, the development and implementation of digital programmes like Ardhisasa have been closely aligned with Kenya's national legislative framework, particularly Acts that underpin land management and administration. The Land Act of 2012, the Land Registration Act of 2012, the Land Amendment Act of 2016, and the Physical and Land Use Planning Act (PLUPA) of 2019 have spurred digital development in the land administration sector. For instance, the Land Registration Act provides for electronic land transactions, while the Physical and Land Use Planning Act regulations of 2021 stipulate that all plans should be georeferenced and also specifies digital plan requirements such as digital data formats.

These national and local policies are supported by a range of international guidelines from UN and World bank. UNECE, UN-Habitat, FAO, World Bank, ISO, IHO, OGC, and FIG have all formulated standards for digitalisation of land administration and management. In particular, United Nations Committee of Experts on Global Geospatial Information Management (UNGGIM) produced the Framework for Effective Land Administration (UNGGIM, 2020). While these reports push for increased digitalisation in land administration, they also warn about the risks of data security and digital inequalities.

Despite a series of global frameworks, new challenges are emerging from the rapid expansion of digital tools in land sector institutions. Aligning national and local development agendas with global guidelines remains a key challenge. Coordination among public institutions at different governance levels for developing and operating digital systems and interfaces is essential. Data sharing across departments and verifiability of this data is a continuous challenge. Balancing effective land administration service delivery with participation and accountability in land matters by all sectors of society is another critical issue. Authorities at the national and county levels strive to balance flexibility and standardisation of digital systems, considering the dynamic and fluid nature of land interests in the region. Understanding how policymakers address these concerns in their daily administration and future planning provides insight into the confluence between policymaking practices and the expansion of digital technologies in land administration and management.

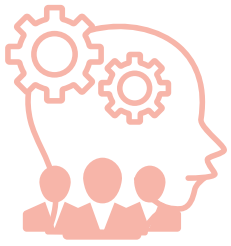
Finally, along with other countries in the region, Kenya faces significant challenges in digitalising its land information infrastructures. These challenges include the extent to which specific contextual needs and resource capabilities allow for the design and implementation of digital governance. Other key issues include the prevalence of colonial legacies that hinder land administration, discretionary practices concerning land ownership and transitions, loopholes in the land tenure system, and social and cultural factors that underpin the unequal distribution of land across the country. From a policymaking perspective, achieving digital land administration will require a multifaceted approach that simultaneously considers national legal frameworks, governance structures, and socio-economic disparities among different members of society.

The roadmap for land justice presented in this document comprises **six principles** that form suggested guidelines for future developments. Together, these principles address the need for good governance and administrative reform, shifts in technological development and procurement strategies, and the inclusion of underrepresented knowledge, people, and tenure relationships in the information infrastructures for land governance. Crosscutting all principles is the question of how digitalisation can contribute to land justice. By creating a roadmap that centres justice and efficiency within digital land administration, we hope to provide an alternative pathway to digitalisation which is responsive and inclusive of all people.

These principles emerge from our research and conversations on land administration and digital governance in Kenya. Nevertheless, these principles potentially travel to other contexts, providing that they are properly contextualised to fit the legislative, institutional, and cultural diversity across geographies. Amongst others, this requires being attuned to customary land governance practices which might not be properly represented in the existing land governance regimes and identifying local key-challenges in terms of capacity development and data availability and quality (Zevenbergen et al., 2013).

ROAD MAP FOR LAND JUSTICE

PRINCIPLE 1: Building institutional memory and continuity across administrative changes



Transitions within local and regional governmental institutions often lead to discontinuities in policies and initiatives. Earlier plans and initiatives established by previous administrations and partly executed are abandoned for new policies and initiatives in new governments. Discontinuities in policies, initiatives and administrative processes can hinder local governments from building on previous digitalisation efforts, leading to higher costs in financial and human resources. Further earlier projects that do not reach fruition within their timeline or those that do not deliver on their objectives are deemed to be 'failures' and provide justification to new governments for changing policy.

The first principle then, is to build upon institutional memory of policies and actions to ensure continuity between different administrations. This involves allowing previous bureaucratic and administrative experiences to inform current plans and even learning from past challenges and weaknesses. By considering past experiences, authorities can learn from earlier initiatives and leverage the existing systems' legacies to inform new developments. Doing so, will cultivate institutional memory, fostering stronger digitalisation initiatives that incorporate past lessons and consider long-term goals beyond political interests and changes in government officials.

CASE STUDY:
Kenya's eCitizen, an evolving system learning from experience

eCitizen is Kenya's integrated online portal, through which government departments and agencies offer a range of digital services, including applications for passports, driving licenses, business registration certificates, vehicle logbooks, and more. Developed as a payment gateway, it integrates with various electronic payment platforms, including mobile money services like M-Pesa. With the high penetration of internet and smartphones in the country, eCitizen has become a cornerstone of Kenya's economic infrastructure, enabling citizens, non-citizens, and businesses to access government services and make payments online.

Since its launch in 2014, eCitizen has been praised for its efficiency and effectiveness, significantly reducing the need for voluminous paperwork in government services. However, it has also faced challenges, including vulnerabilities to cyber-attacks and technical glitches. In response, the Kenyan government has continually addressed these challenges by implementing updates and modifications to ensure the platform operates effectively.

While it is important to acknowledge the system's limitations, the strengths of eCitizen provide valuable lessons for other digital government service initiatives. These include the system's capacity for continuous updates, the enhancement of digital security measures, and the incorporation of new features based on the evolving needs of the government and society.

ROAD MAP FOR LAND JUSTICE

PRINCIPLE 2: Develop digital capacity and resources within local government

Much of our research and the discussions during the policy roundtable focussed on the lack of digital capacity, resources, and infrastructures in local government. This directly affects the success rate of policy implementation and is a major ongoing roadblock to land digitalisation. We concluded that while there is a wider digital divide in society, acute digital divides also exist within local governments. The reasons behind this are partly related to the lack of investment in training both senior and junior staff to bridge digital gaps. Additionally, lack of capacity has increased reliance on temporary labour of interns and casualised workers to do the digital work for state departments (Datta & Muthama, 2025).

We suggest that quick wins are possible if local governments invest in permanent recruitment drives targeting interns and casualised workers who have developed the skills and experience working with local governments. This can, in the long run, reduce reliance on contractual labour. As both digital technology and capacity are dynamic, local governments need to approach this strategically by creating transformative opportunities to enhance the efficiency, transparency, and accessibility of land-digitalisation processes.

The policy roundtable highlighted that local governments do not usually have adequate investment in digital infrastructure to initiate the digitisation process, and therefore, they have to rely on investment from global funders such as UN-FAO to set up a baseline infrastructure for digitalisation. Further, while decentralisation of governance has given increased power and autonomy to local governments,

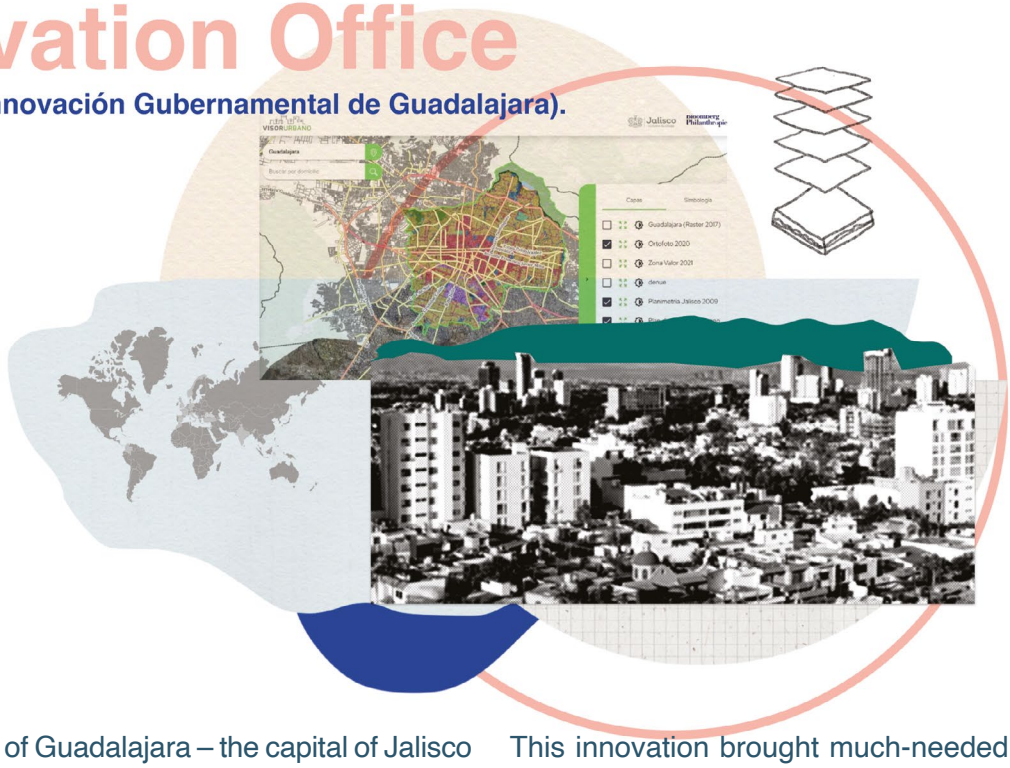
financial budget determinations are largely centralised. With devolution, local governments need to create internal revenue streams, which are often insufficient for capital-intensive infrastructural investments.

To address this, it is necessary to find investment streams in infrastructure and capacity building within local governments. However, this is a challenging area as it requires changes in both national or federal and global investment patterns. Despite several years of investment, local governments simply do not possess the infrastructure and machinery required to digitise paper and maintain platforms. We suggest that to ensure value for money for state investments in digital technologies, and the potential to build long-term self-reliance within state departments, there should be optional requirements for open-source software/ API in all external supplier contracts. This will reduce long-term path dependency on external experts to design platforms. Open-source software and open API systems can counter the 'black box' approach currently taken by the software industry and produce resilient digitalisation in the state. Designing open systems will give local governments choice and flexibility in terms of how they want to invest in technology and create possibilities for more innovative collaborations with the technology sector.

Nairobi peripheries, June 2024. Image by: Ayona Datta

CASE STUDY:
Guadalajara's Governmental Innovation Office

(Dirección de Innovación Gubernamental de Guadalajara).



The municipality of Guadalajara – the capital of Jalisco State in Mexico – is home to a dedicated Governmental Innovation Office, which spearheads the adoption and development of digital technologies to enhance local governance and improve public services. This office plays a pivotal role in managing the municipality's affairs, continually innovating how government data is produced and utilised. It employs artificial intelligence and other cutting-edge tools to drive the digitalisation of public services, promoting both social and economic well-being across the region.

In 2017, the Innovation Office launched *Visor Urbano*, a transformative digital platform aimed at overhauling the municipality's management of building permit applications, which had previously been slow and susceptible to corruption. *Visor Urbano* standardised building-related procedures, streamlining assessments and approvals while tackling document forgery and reducing opportunities for corruption. This innovation brought much-needed transparency and security to the process, contributing to a more efficient and well-organised city.

The impact of *Visor Urbano* has been significant across several areas of local governance. First, it has simplified and expedited administrative procedures. Second, it has reduced costs for both the government and citizens by speeding up service delivery. Third, it has enhanced the production of geo-referenced open data, and finally, it has improved local tax collection. Through *Visor Urbano* and other initiatives, Guadalajara's Innovation Office has driven the adoption of new Information and Communication Technologies (ICTs), providing digital solutions to the technological needs of the municipal government. Moreover, it has promoted the ethical handling of digital, focused, and geospatial data, advancing more responsible and transparent governmental practices.

ROAD MAP FOR LAND JUSTICE

PRINCIPLE 3: Design agile processes for future-proofing digital governance systems

Land administration and regional planning departments are moving towards the digitalisation of their information systems and citizen-facing services. However, within the context of fast-paced technological development and the ever-changing landscape of land governance, it is challenging to manage this transition within traditional public procurement standards. Specifically, the linear course of tendering, project definition, product development, service launch, and evaluation, operates from the premise that digitalisation is a product rather than a process. This linear and product-centred approach can lead to technological lock-in, reactive rather than adaptive development, and path dependency. As we have seen with previous attempts to develop a digital land information management system for Kenya, this can result in a cycle of initiation, pilot implementation, and abandonment (Hoefsloot & Gateri, 2024).

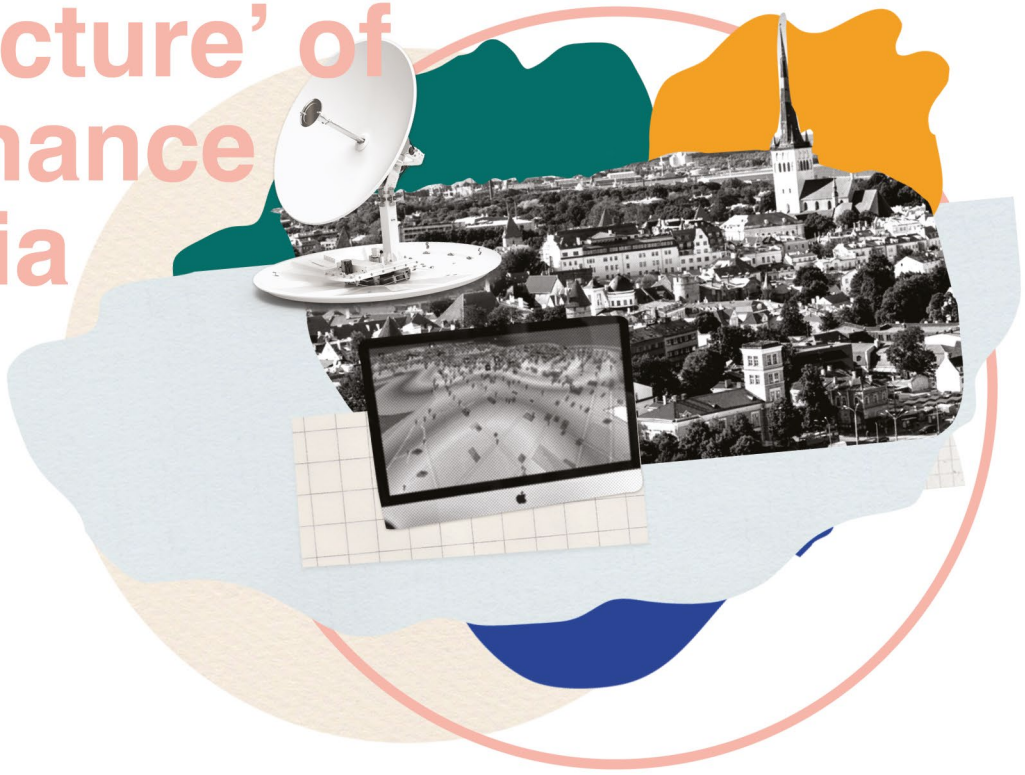
In light of these challenges, we argue that effective strategies for the digitalisation of land administration and regional planning should adopt agile approaches in governing digitalisation processes and modular methodologies for technology design. Embracing agile principles allows government agencies to respond to the changing circumstances of land administration and technological developments, where static systems can quickly become obsolete. Agility emphasises the iterative development of technological systems and the importance of constructing regular and effective feedback

Nairobi peripheries,
June 2024.
Image by:
Ayona Datta

loops, ensuring that the system evolves based on real-world implementation and changing requirements.

In addition, modular design, as opposed to linear technological development, allows for more adaptive and resilient systems that can be customised as government and citizen needs change. Within modular technologies, individual building blocks can be updated or added without affecting the foundational system. Similarly, outdated modules can be replaced or removed without requiring a complete system redesign (Bonina & Eaton, 2020). As such, modularly designed systems support incremental investments in resource-scarce environments and a controlled scale-up and roll-out of digital governance technologies.
Nevertheless, these suggestions require far-reaching changes in governmental acquisition strategies, allowing large, complex projects to be divided into small-scope, interoperable increments and a shift in how we define and evaluate a processual development rather than a finished product. Additionally, it requires internal capacity to direct this process successfully.

CASE STUDY:
X-Road – the 'backbone infrastructure' of E-governance in Estonia



Estonia has been at the forefront of e-governance developments, digitalising not only its citizen-facing services but also the information flows within public organisations, since the 1990s. Key to this transition has been the development and implementation of X-Road, a distributed information exchange platform. Initially developed by Estonia's Information System Authority, X-Road is an open-source software that aids communication between across government sectors. By creating the universal for interoperability for information systems, databases, and registries, X-Road facilitates the secure exchange of data between private and public sector, state and citizens, and between and within governmental organisations. As 'backbone infrastructure' it creates a digital ecosystem on which additional services and layers can be build. Currently, it forms the fundament for electronic identity, health, governance, and educational systems as well as facilitating online tax services, banking, and business and residency registration.

The adaptive capacity of the system is illustrated by its permanence with the Estonian government. Initially piloted in 1998 only few years after Estonia's independence, and fully operational in since 2001, it has not only grown in scope, but also proved to evolve together with changes governance and global technological development. X-Road is currently adapted and use in over 20 other countries across the world.

Nevertheless, as the exchange of electronic data on X-Road increases annually, and more services are built onto this system, there are significant risks to consider. Extended inoperability of the system or unauthorised access to the data could lead to severe disruptions on all government sectors and privacy breaches. To mitigate this requires high standards in terms of integrity in terms of design and use, confidentiality in terms of access, and the creation of fail-proof fall-back systems.

ROAD MAP FOR LAND JUSTICE

PRINCIPLE 4: Integrate local and customary knowledge into planning practices

In Kenya, there are several spaces for garnering feedback from citizens – for example, National Land Commission and Ministry of Lands organise citizen forums, this knowledge exchange with citizens usually informs land administration practice improvement. In the context of rapid urbanisation into metropolitan peripheries where land is communally owned for example, in group ranches , it is important to continue to entrench the inclusion of grassroots knowledge into planning processes within the existing planning and public participation legal frameworks. This is particularly important because it is usually communities (such as Maasai) who face the social, economic and environmental consequences of urbanisation. While land digitalisation makes communal land more visible for future metropolitan planning, it also makes such populations more vulnerable from the rapid financialization of land (GRAIN, 2022).

Integrating customary knowledge is particularly important and urgent in Kenya's ongoing land digitalisation processes, as geospatial mapping cannot capture the varied land ownership and use when it comes to community lands. Most often boundaries are indeterminate and flexible. The current focus on boundary accuracy in geospatial mapping privileges private property and capital investment. Since large swathes of land in Kenya are under community ownership, the priority should be on improving the current participatory mapping practices to ensure they match the community needs and are within the set standards and legal boundaries.

Subdivision and

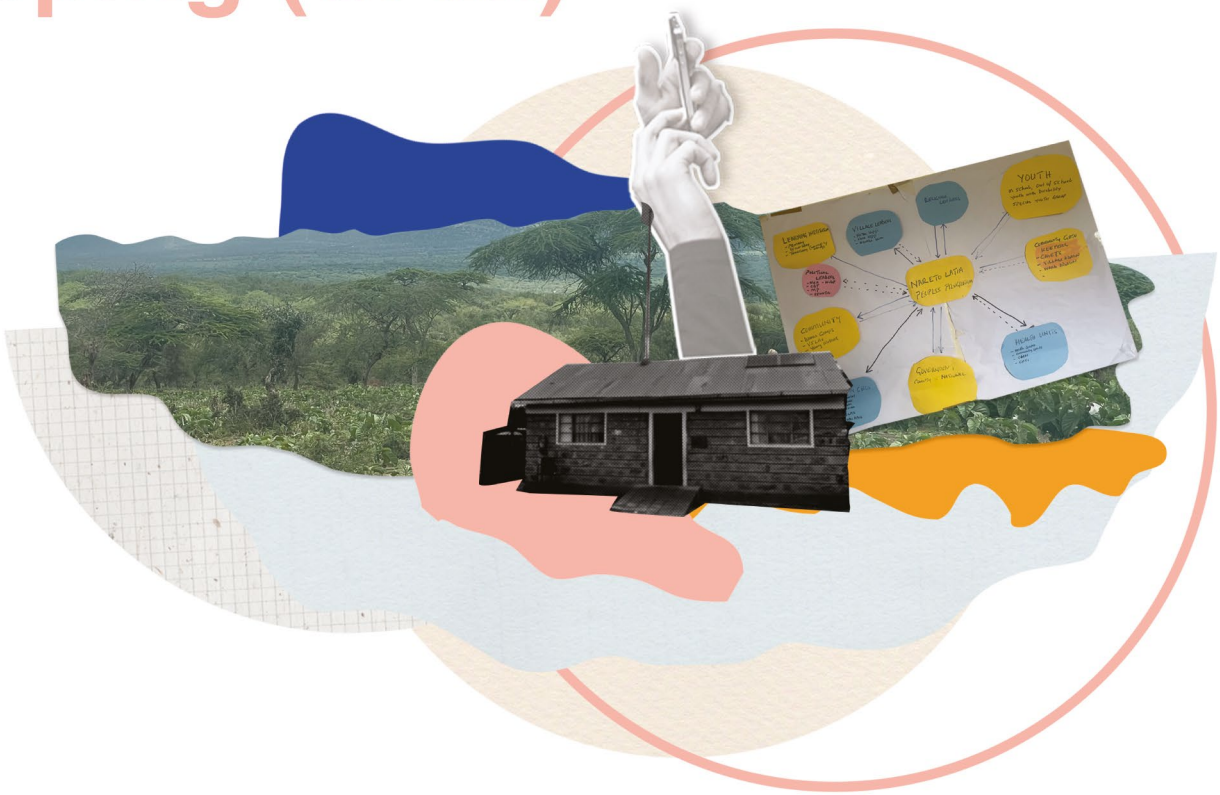
land fragmentation in Kenya is rapidly progressing, and even full digitalisation will not keep track of the land changes in real time. The roundtable highlighted the specific cases of three counties around Nairobi where communities are in a precarious condition as community land has been subdivided and this might destroy livestock, agriculture, and wildlife areas. To prevent a repetition of agriculturally productive and nature conservation areas being taken up by real estate and other private property investments, the purpose of digitalisation should be to identify and bank those land for other future uses such as food production, rather than transformation to the market-led highest and best use in most instances which tends to be real estate. This would also call for stringent development control enforcement.

What would fit-for-purpose mapping look like? We suggest that the responsible agencies and local governments will need to be open to varied mapping practices within the confines of the relevant laws. In doing this local governments should further entrench the public participation requirements within their mapping practices to ensure they substantively integrate local and customary knowledge into mapping to benefit future generations. This means experimenting with different and finding mechanisms to engage with citizens across digital divides, and ultimately appreciating the local contextual power relationships during the process of mapping.

However, state officials and professionals often find it challenging to integrate local knowledge where marginalised communities are unable to engage with the processes of policymaking, the syntax of masterplans, or the protocols of formal participation. For this reason, it is important to further improve the statute provided public participation platforms in order to produce contextually relevant mapping.

Kajiado County,
Nairobi peripheries
June 2024.
Image by:
Ayona Datta

CASE STUDY:
Community Asset Mapping (CAM)



Community Asset Mapping (CAM) Methodology is an innovative approach to work with marginal communities using low-technology tools of engagement and knowledge production. It uses paper and props to define significant 'assets' in the community and find solutions to ensure these assets are made resilient in the future. In CAM methodology, a schematic map of concentric circles is used as the base map on paper to indicate the relative value and importance of particular assets with regard to the main project objective which is placed in the centre of the circles at the beginning. The first round of discussions in the community are aimed at finding a common challenge around which the mapping exercise could be built. Participants then spend a few minutes discussing various assets that exist around that challenge that could be of value and interest from their own perspectives. The discussion can be facilitated by material prompts in the form of blocks, flags, post-it notes, and other symbols representing the different kinds of assets (infrastructure, social networks, natural resources etc) in existence. The participants then take turns placing their props representing these assets on the concentric circles depending on their relative significance (closest to or farthest from the centre). They do this while describing the choice of their asset and rationale behind its position on the map. The CAM methodology produces intense conversation and customary knowledge production in local contexts without minimal training and requirements for technology. It is well suited to communities that face various challenges in literacy, digital capacity and formal knowledge. (Source: https://www.smartsmallcity.com/workshops)

ROAD MAP FOR LAND JUSTICE

PRINCIPLE 5: Include data justice by design

Across the board, we notice challenges related to the volume, variety, and veracity of data available for digital land administration. Both digital and paper data sources regarding land, for example, land ownership and parcel information, are often times incomplete, outdated, and exclusionary to common land tenure structures. This raises issues with regard to the data available as well as the principles underlying the collection of data for land administration.

First, in Kenya, the databases created for digital land information management (Ardhisasa) struggle with the lack of standardisation in geo-coordinate systems used for mapping and the late implementation of unique ID numbers for each land parcel. As a result, the paper data first needs to be transformed into a universal coordinate and ID system before a digital database can be created. Moreover, frequent contestations over land titles and boundaries result in delays in the digital registration of land. Second, the current information infrastructures available to the state prioritise the registration of private property over communal property and rarely discuss the integration of informalised communities or polygamous households within its systems.

To overcome these challenges related to the quality and inclusivity of data, we propose embracing data justice by design. The data justice framework emphasises the importance of visibility, representation, and privacy; autonomy in choice regarding engagement with the data systems; the opportunity to reap proportional benefits; and the ability to challenge biases and prevent discrimination in the system (Taylor, 2017). Embracing this within digital land information management systems would require building in features that allow citizens to contest inaccuracy and incompleteness in the data, committing to the registration of all types of people-land relationships to prevent exclusion and discrimination, and grant user autonomy in decisions regarding the sharing, use, and capitalisation of their data within the system.

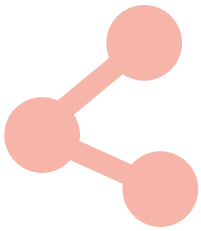
CASE STUDY:
Haki Ardhi App – a women's land right reporting tool

The Haki Ardhi App is a digital mobile application developed by Kenya Land Alliance in collaboration with international partners and the Environment and Land Courts of Kenya, to document land rights injustices faced by women. In Kenya's predominantly patriarchal society, women regularly face challenges regarding their inheritance rights, evictions, land grabbing, and denial of access to their property. Through the app, women can directly report land grievances and access to support. In addition, the app provides a tool for supporting organisation to digitise case files currently on paper and collect data to inform research and policy advice.

The Haki Ardhi App is an example for how to centre the experience of marginalised communities within digitalisation and mobilise data and digital infrastructures for the advancement of justice. Particularly, through the feature that women can report biases or violations in the records without the risks of in-person complains, shows a pathway for digitalisation that protects privacy and improves representation. The downside thus far is that the Kenyan government does not allow the use of externally generated data to inform policymaking. Hence, the data generated by the Haki Ardhi App remains in the advocacy space, reducing its transformative potential within the governmental sector.

ROAD MAP FOR LAND JUSTICE

PRINCIPLE 6: Mandatory citizen participation in local decision-making



Stronger policies are crafted when diverse perspectives and experiences come together in dialogue. In the context of land management and administration, interdisciplinary conversations can be facilitated through sectoral committees that include surveyors, valuers, planners, economists, lawyers, sociologists, and members of civil society. These taskforces consist of multidisciplinary teams where members contribute critical perspectives and expertise from various disciplines and fields, as well as empirical experiences from citizens' associations.

When forming multidisciplinary committees or assemblies, it is essential to ensure that all members have equal opportunities to express their views and recommendations. Thus, it is important to avoid performative or tokenistic exercises where certain participants are marginalised and their input is disregarded. Adhering to these principles can result in the creation of robust policy frameworks rooted in solid democratic practices, such as the public participation provisions in various land-related laws in Kenya.

Concerning land digitalisation, multidisciplinary taskforces can be crucial in involving local communities and expert groups in designing and implementing initiatives involving digital tools and online interfaces. This can include engaging expert communities and local inhabitants in designing local digital land management systems, and automating development approval processes.
Moreover, a participatory approach to policymaking can enhance transparency

in budget review and allocation processes. In recent decades, participatory budgeting has gained popularity in cities like Porto Alegre, Brazil, where citizens not only present their voice through regular deliberative forums but also vote for important policy decisions, review the past year's budget, and take part in the prioritisation of the budget for their district. Overall, participatory budgeting in Porto Alegre has significantly increased citizen participation and local government accountability (see Souza, 2001). Inspired by this and other examples, land digitalisation initiatives can incorporate more equitable and transparent practices in their design and implementation.

Nairobi peripheries, June 2024. Image by: Ayona Datta

CASE STUDY:
Participatory budgeting in Pune, India

Participatory budgeting in Pune, India, is a notable example of democratic innovation in the country. Established in 2007, the initiative aimed to engage citizens in the budget creation process by inviting their suggestions regarding municipal budget allocation through an online forum. This intervention was a pragmatic attempt to address common issues in representative democracies, such as clientelism, nepotism in local power structures, and the underrepresentation of vulnerable groups in society. To facilitate citizen participation in the budget allocation process, Pune established a forum for direct citizen involvement. This procedural shift aimed to make budget creation and implementation more inclusive, transparent, accountable, and effective. While participatory budgeting in Pune has been recognised as a flagship example of public policymaking, several challenges need to be addressed for further improvement. These include ensuring sustained citizen engagement in city-level governance and overcoming the digital divide that prevents some citizens from contributing their suggestions online.

SUMMARY

PRINCIPLE	RECOMMENDATIONS	CASE STUDY
1. Build institutional memory 	Learn from past challenges and 'failures'. Ensure continuity across administrative change.	Kenya's eCitizen, an evolving system learning from experience
2. Develop digital capacity and resources 	Invest in permanent recruitment drives targeting young talent who have the skills and experience of working with local governments. To avoid long-term path dependency, include mandatory requirements for open-source software/API in all external supplier contracts.	Guadalajara's Governmental Innovation Office
3. Design agile systems 	Include modular methodologies for technology design. Adopt iterative development of technological systems and maintain regular and effective feedback loops with users.	e-governance platform in Kenya
4. Integrate local and customary knowledge 	Find low-tech tools to engage with citizens across digital divides. Respond to local power relationships of gender, generation and access. Develop fit for purpose mapping.	Community Asset Mapping (CAM) methodology
5. Include data justice by design 	Visibility, representation, and privacy by design Autonomy in choice regarding engagement with the data systems. Opportunity to reap proportional benefits. Ability to challenge biases and prevent discrimination in the system.	Haki Ardhi App – a women's land right reporting tool
6. Establish binding principles 	Create multidisciplinary taskforces. Participatory approach to policy-making to include and incorporate citizens experiences.	Participatory budgeting in Pune, India

REFERENCES

Bonina, C., & Eaton, B. (2020). Cultivating open government data platform ecosystems through governance: Lessons from Buenos Aires, Mexico City and Montevideo. Government Information Quarterly, 37(3), 101479. https://doi.org/10.1016/j.giq.2020.101479

Datta, A., & Muthama, D. M. (2025). Peripheralised Labour: The digitisation of Nairobi's land information system. In A. Datta & F. I. Hoefsloot (Eds.), Informational Peripheries: Rethinking the urban in a digital age. UCL Press.

GRAIN. (2022, April 15). The digitalisation of land: More data, less land. https://grain.org/en/article/6832-the-digitalisation-of-land-more-data-less-land

Hoefsloot, F. I., & Gateri, C. (2024). Contestation, negotiation, and experimentation: The liminality of land administration platforms in Kenya. Environment and Planning D: Society and Space, 02637758241254943. https://doi.org/10.1177/02637758241254943

Souza, C. (2001). Participatory budgeting in Brazilian cities: Limits and possibilities in building democratic institutions. Environment and Urbanization, 13(1), 159–184. https://doi.org/10.1177/095624780101300112

Taylor, L. (2017). What is data justice? The case for connecting digital rights and freedoms globally. Big Data & Society, 4(2), 205395171773633. https://doi.org/10.1177/2053951717736335

UNGGIM. (2020). Framework for Effective Land Administration: A reference for developing, reforming, renewing, strengthening, modernizing, and monitoring land administration. Report by United Nations Committee of Experts on Global Geospatial Information Management (E/C.20/2020/29/Add.2). United Nations. https://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/E-C.20-2020-29-Add_2-Framework-for-Effective-Land-Administration.pdf

Zevenbergen, J., Augustinus, C., Antonio, D., & Bennett, R. (2013). Pro-poor land administration: Principles for recording the land rights of the underrepresented. Land Use Policy, 31, 595–604. https://doi.org/10.1016/j.landusepol.2012.09.005

This policy briefing has been made possible by generous funding from the ISPF Institutional Support Grant (ODA) from Research England, and ongoing work in the Regional Futures (REGFUT) project funded by the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme. (Grant agreement No. 101019318)
We are grateful to the British Institute in Eastern Africa (BIEA) and our team there (Dennis Mbugua Muthama and Catherine Gateri) for organising the Policy Roundtable in Nairobi.

This policy briefing has been written collaboratively by the REGUT team members betlow.

Principal Investigator:
Professor Ayona Datta
Department of Geography,
University College London
Email: a.datta@ucl.ac.uk

Project Team:
UCL, London: Fenna Imara Hoefsloot, Mariana Reyes Carranza, Keya Kunte.
BIEA, Nairobi: Catherine Gateri, Dennis Mbugua Muthama, Melissa Wanjiru.
UdeG, Guadalajara: Juan Demerutis Arenas, Jesus Flores, Raul Agraz.
TISS, Mumbai: Abdul Shaban, Neha Gupta.

Cite as: REGFUT (2024). Policy Directions for Land Digitalisation (Policy Briefing 1; p. 28). University College London. https://www.regionalfutures.org/en/outputs

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Established by the European Commission

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