

The social design approach in the co-creation of digital hubs in urban marginalized areas



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In today's digital era, the internet is more than a tool. It's a lifeline. From accessing basic services such as education and healthcare to participating in governance activities, digitalization has become essential to driving modern society. Yet in many urban areas in Kenya, a digital divide exists, inhibiting those living in informal settlements from accessing and using ICTs. In Nairobi, the 'Africa's Silicon Savannah', digital accessibility remains a privilege to those who live in marginalized areas such as informal settlements.

Kenya has made bold steps towards digital inclusion. But for these efforts to sustain long-lasting changes, especially in informal settlements, the design of digital infrastructure must go beyond technology. It must be rooted in its beneficiaries' lived realities, needs and aspirations.

Digitalisation in Kenya: A Nationwide Commitment

Kenya is positioning itself as a leader in the digital transition phase, with major investments in ICT infrastructure, innovation and e-governance. The government is working with the private sector to promote internet connectivity, transforming key sectors such as education, healthcare, agriculture, and transport. This transition is anchored in the newly launched National Digital Masterplan 2022-2032. Developed and implemented by the Information and Communication Authority (ICTA) of Kenya, the plan positions ICT as a key enabler to realising Vision 2030 - accelerating a digitally-enabled economy, and providing a roadmap to achieving socio-economic development. The Digital Superhighway project sets out the development of 100,000 Km of fibre optic across the country, connecting government schools, public spaces, health facilities, and homes with internet. This project is accompanied by the installation of 25,000 public Wi-Fi hotspots in market centres, bus termini, and other public spaces. In addition, the government is establishing 1450 village digital hubs across all wards in the country by 2030. The digital hubs aim to promote digital connectivity in underserved and unserved areas, digital literacy, and increase access to e-government services.

For many communities, especially in marginalised urban areas, these hubs could offer the first real opportunity to participate in the digital economy. However, digital infrastructure alone cannot guarantee inclusion. Too often, top-down technological solutions fail because they overlook the social and spatial realities of the marginalised communities. Research shows that top-down models overlap with the existing socio-political ties of communities (Hoolohan et al., 2020), eventually leading to their failure by sabotage or rejection by the existing community structures (Guma & Wiig, 2022). Further research also show that digital hubs services do not reach their target

groups (Wamuyu, 2017). Rather than supporting those in need, digital support community members who are already employed (Taylor et al., 2023). This calls for the need to adopt a fresh approach in the design of the hubs. The Rise of Digital Hubs in Kenya Over the last decade, digital hubs in Kenya have evolved from elite tech innovations to more grassroots community centres offering literacy and job opportunities. The Ajira Digital Program, a pioneer project by the Government of Kenya, has been focused on providing digital literacy and connecting the youth to gig and freelance work online. Kamkunji Resource Centre in California, Eastleigh, is one example where the community accesses the services of the Ajira Digital program.

In informal settlements like Mathare, Mukuru, or Kibera, small community-led hubs are emerging, often run by local youth groups, individuals, or NGOs. While these spaces provide essential services like training and empowerment, most are not connected to the internet, operate with limited resources, and are not linked to the government's digitalization policy (Nyagaya & Mwau, 2024). Other issues, such as restrictive hours, lack of ownership, and formal bureaucracies, discourage certain groups from accessing the services. Limited community participation in the design of such community hubs leads to underutilization, leaving them to serve a small fraction of the population.

Besides, ICTA designs digital hubs technically without considering how their location, governance, and services can best target heterogeneous residents in the informal settlements. This article, therefore, proposes a social design approach in developing digital hubs in informal settlements.

The approach centres on the participation of communities and relevant stakeholders in conceptualizing and designing hubs. Communities and the government form a mutual relationship, where the government understands the social and political dynamics better, while the community understands the government's digitalization standards.

The Social Design Framework

The social design approach offers a compelling alternative to top-down technical development models. It is founded on participatory design, social innovation and co-creation that ensure public spaces are created with the community, not just for the community. This approach allows communities and relevant stakeholders to design solutions tailored to solve their priority needs. It also enables the community to work with target groups – including the most marginalised groups to participate in the co-creation, centering their needs and proposals for developing inclusive and sustainable solutions. Further, other key stakeholders, such as the local service providers, are included in the co-creation and co-design processes.

The social design approach allows informal settlement communities and stakeholders to leverage their daily digital experience to co-create sustainable and inclusive digital hubs. The following table summarises the social design process for co-creating digital hubs in informal settlements.

The process	Anticipated Method(s)	Outcome
Assessment of the lived experiences	• Surveys & Mapping of infrastructure • Household interviews	• Everyday (digital) urbanism. • Describes the social, economic, political and cultural dynamics of the community.
Co-defining the problem	• Interviews with social (target) groups • FGDs • Community workshops	• Identifies the target groups. • Identifies the underlying social needs. • Participation of the most vulnerable and excluded groups such as PWDs.
Co-creation of solutions	• Best practices • Participatory design workshop • Co-creation workshops	• Prioritizes hub services. • Identifies the location of the hub(s). • Develops governance mechanisms • Develops monitoring and evaluation framework. • Institutes decision-making mechanisms. • Develops a framework for continual participation and feedback mechanisms. • Formulates dispute resolution mechanisms. • Defines the roles of community, government, the private sector and other relevant actors.

Phase 1: Assessment of lived realities

The process begins with an assessment of the area to capture residents' lived experiences within their everyday digital activities, providing a baseline understanding of social, economic, political, and cultural dynamics. For example, understanding how Community Health Promoters (CHPs) use digital tools like smartphones in their daily health activities.

Phase 2: Co-definition of the problem

This phase enables the designers, the community, and relevant stakeholders to identify varied needs and challenges of the heterogeneous community. This includes relating the digital connectivity challenges to the social, political, and economic realities of the informal settlement community, for example, describing how and why households access community centres, and the challenges related to their governance.

Phase 3: Co-creation of solutions

This phase enables the co-creation of services to solve the prioritized challenges. It uses methods such as participatory design or co-creation workshops to propose services, location, and governance structure of the digital hubs. This allows the community to link their needs to the digital hub's services. Participation of stakeholders, including local service providers, encourages acceptability and functionality of the digital hubs. The workshop participants propose continual participation, financing mechanisms, and leadership, thereby ensuring inclusivity and sustainability of the hubs.

ICTA's master plan aims to establish digital hubs in every ward in Kenya. This is recommended as it potentially aims to bridge the digital divide. The government conducts technical designs to decide on the location and spatial layout of the plans. We recommend adding a social design approach tailored to the services and governance structure, making the hubs relevant and sustainable. This overcomes the risk of failure or deepening exclusion in marginalized urban areas.

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