

Imagining the Future of the Dairy Industry: A Participatory Human-Centred Approach to Policy Making for Rural Communities in Kenya

Caroline Kuhn ^a, Mary Warui^b, Domini Kimani^b and Fisayo Oyewale^c

^aSchool of Education, Bath Spa University, Bath, UK; ^bAwakening Futures Africa, Nairobi, Kenya; ^cUNICEF

ABSTRACT

In this paper, we examine the intersection of artificial intelligence (AI)-driven technologies and human development (HD) with a focus on the rural–urban digital divide in Kenya. We draw from two Futures Literacy Labs – participatory workshops designed to envision alternative futures- organised with smallholder farmers, predominantly women from Kinangop and Ol Kalou counties in Kenya. Through these workshops, participants envisioned different futures of the dairy industry in relation to AI-driven technologies. Building on these insights, we analyse how AI both enables and constrains substantive freedoms/central capabilities of rural farmers. Our findings reveal that access to digital technologies remains highly uneven, with women farmers particularly disadvantaged in leveraging AI tools for agricultural productivity and thus access to decent work. We briefly explore Kenya’s AI policy landscape, identifying gaps in rural accessibility, gender-responsive approaches, as well as a lack of participation in policy making. We thus propose some capability-informed policy suggestions where AI can contribute to equitable HD outcomes, with the potential to improve farmers’ quality of life, but not without access to education, partnerships, and institutional support. We conclude by emphasising the importance of incorporating local voices in capability-centred policymaking, contributing to bridging the increasing digital divide and potentially transforming AI-driven technologies from a source of inequality into a means of expanding human freedoms across rural settings.

KEYWORDS

Human development; AI socio-technical systems; Futures Literacy; capacity to aspire; dairy industry; Kenya

In Silicon Valley, AI researchers debate the ethics of automation. In Brussels, policy-makers discuss governance frameworks. But in rural Kenya, a farmer wonders how AI-driven agribusiness monopolies impact their future¹

CONTACT Caroline Kuhn  c.kuhn@bathspa.ac.uk  26 newbridge road, BA1 3JZ, Bath, Somerset, UK

© 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

Introduction

As announced by the Human Development Report Office in 2025,² global development is increasingly shaped by the interplay of technological innovation, human agency, and adaptive capabilities, with artificial intelligence (AI) emerging as a transformative force. Yet this transformation is uneven. The 2024 Network Readiness Index (NRI 2024)³ highlights how rural areas, particularly in the Global South, remain excluded from meaningful participation in digital futures. While often framed as a global opportunity where choice is at the centre (2025 UNDP report), the spread of AI risks exacerbating structural inequalities, particularly in the Global South. In Kenya, while urban centres benefit from the country's tech leadership, rural regions lack not only infrastructure, but a voice in shaping AI's trajectory (NRI 2024). A pressing need already recognised in the 2024 UN Governing AI for humanity report.⁴

This exclusion is not merely technological, for it goes deeper, shaping what people envision they can be and do, thus, it's aspirational. The poor often lack the "capacity to aspire", that is, the ability to imagine desirable futures and to navigate structural pathways to realise them (Appadurai 2004, 69). In marginalised contexts, where civic voice is weak and systemic change feels distant, aspiration itself remains underdeveloped (Appadurai 2004; Sen 1999). This restricts individual well-being and undermines collective development and democratic participation, all critical for human development. Hence, these marginalised communities are likely to react to externally defined policies often disconnected from their social reality. Without grounded and inclusive engagement in AI development, there is a risk of reproducing the same policy disconnects that plagued top-down efforts such as Africa's Green Revolution (Abegunde and Obi 2022).

Development policy in times of AI must go beyond bridging access gaps or delivering context-blind innovation. It must tackle the structural and cultural inequalities that prevent rural communities from shaping technology innovation to serve their goals. Our central question is not whether AI will create or destroy jobs, but how AI policies can be designed from the grassroots to expand human capabilities, including those at the margins of digital transformation. We argue that without deliberate human-centred policy intervention focused on expanding capabilities, AI-driven technologies will jeopardise human development.

This paper presents a case study of two Futures Literacy Labs (FLLs) held with smallholder farmers in Nyandarua County, mainly women with varying levels of literacy and limited access to AI-driven systems. These labs, conducted in Gikūyū, did not aim to directly enhance AI capabilities, but rather to explore how participants imagine futures where AI-driven systems intersect with dairy production and explore what roles they see for themselves in those futures. Participants reflected on the current state of the dairy sector, articulated possible

AI-integrated futures, identified knowledge gaps and hidden assumptions, and sketched pathways toward desired outcomes. These dialogues, we argue, can inform development policy by grounding it in community aspirations, revealing context-specific opportunities for AI adoption, and surfacing priorities often invisible to top-down policy.

We propose FLLs as a participatory, culturally rooted method to foster Futures Literacy (FL) and strengthen the “capacity to aspire” (CtA) in rural Kenya. By embedding this approach in technology policy processes, we argue that FLLs can serve as a strategic tool for building human agency, promoting digital justice, and ensuring that rural voices shape the direction of AI adoption. Our framework connects FL, a framework for policy making (Miller 2018), the CA (Nussbaum 2000; Sen 1999), and Appadurai’s (2004) concept of CtA, the latter being a site of interplay between agency, culture, and structure; dimensions rarely integrated in policy yet vital for inclusive development.

In what follows we outline our conceptual approach, describe the local dairy sector and AI policy context in Kenya, present findings from the FLLs, and conclude by suggesting some policy alternatives.

The Framework: Aspiration, Anticipation, and the Practice of Future-Making

Development is not only about resource distribution or technological access; it is about expanding people’s freedoms to live lives they value. This principle central to the CA, centres human agency and empowerment as both the means and the end of development. Yet, for rural communities, constrained by economic precarity and structural marginalisation, these freedoms are often limited not only by material deficits, but by underdevelopment of aspiration and anticipatory capacity.

Appadurai’s “Capacity to Aspire” as a Cultural Capability

The concept “**capacity to aspire**” (CtA) offers a critical entry point in creating human agency. Aspiration is a “navigational capacity which is nurtured by the possibility of real-world conjectures (...) and thrives and survives on practice, exploration, conjecture and refutation” (Appadurai 2004, 69). It is, thus, not a fixed trait, but rather, a capacity to be developed through ongoing practice, a meta-skill rooted in culture and experience that allows people to connect dreams with viable pathways. It requires understanding how to navigate the “dense combination of nodes and pathways” (Appadurai 2004, 69) that lie between the present and an imagined future. The more we explore our aspirational maps, the more robust and realistic our capacity to navigate the future becomes.

The poor, lacking exposure to deliberative spaces and future-oriented institutions, tend to have “brittle horizons of aspiration”, that is, narrow views of what is possible (Appadurai 2004, 69). As Sen (1999) notes, people in such contexts may adapt preferences downward, accepting lives far below their capabilities. Critically, Appadurai sees culture as a resource, a repository of meanings and stories, that, when activated, can support strategic foresight. Enhancing the CtA is therefore a process of cultural empowerment. Yet, in practice, development programmes often ignore aspirations (c.f Mausch et al. 2021), focusing narrowly on economic behaviours and measurable outcomes. Without nurturing aspiration and future-making, policies risk reproducing short-termism and dependency, especially in marginalised settings. The CtA, however, can only be developed by capable agents that have the capacity to understand the meaning of life above their own lives (Biggeri, Ballet, and Comim 2011)

Futures Literacy and Futures Literacy Labs: A Method to Foster the Capacity to Aspire, Agency, and Empowerment

The fast-evolving landscape of AI demands rethinking policy as a tool not just for managing risk or accelerating innovation, but for enabling people to engage meaningfully with technological innovation. This is the potential of FL, a capability first articulated by Miller (2018) and operationalised by UNESCO. FL is the ability to imagine multiple futures to inform action in the present. It does not predict the future but enables people to question assumptions, imagine alternatives, and act with greater awareness and agency (Miller 2018). FL is not predictive, it is generative, encouraging people to question dominant narratives, encouraging second-order learning, exploring diverse possibilities, thus thinking *outside the box* of our assumptions. FL is like giving people a map and a compass to chart novel journeys, while the CtA makes sure people have the freedom to travel to the places chosen. It’s about choices and the agency to make them happen. Policy makers, in turn, are responsible to create supportive social structures for that journey to be possible, particularly for those at the margins of development.

Futures Literacy Laboratory (FLL) offers an applied method to foster and strengthen FL (Miller 2018). These participatory spaces invite people to construct and deconstruct possible, preferred, and reframed futures through, e.g. storytelling, dramatisation, and backcasting. They are non-elitist and decolonial, designed to value local knowledges, vernacular languages, and culturally embedded foresight (c.f. Feukeu 2021)⁵, making them suitable for rural settings like Nyandarua County. In addition, FLLs offer a replicable, low-cost model for participatory foresight that can be embedded within agricultural extension services, digital inclusion programmes, and rural innovation hubs (c.f. Mbugua Ibau 2023). In Kenya’s Nyandarua dairy sector, FLLs can enable farmers to envision how AI systems might reshape their practices and help participants imagine

meaningful, tech-enabled futures beyond urban migration which is a critical problem in rural Kenya (Kyule and Nguli 2020). FLL also enables participants' narrative agency: the capacity to question, author, and revise the stories that shape their lives. This narrative agency is central to the CtA and by extension, to enhancing human development. Through FLLs participants create community-driven narratives that can inform policy making (Miller 2018; Scordato, Koch, and Miller 2021), providing policymakers with actionable insight into how rural communities relate to, imagine, and could benefit from AI.

From Capability to Futures-Making Practice

Bringing together FL and CtA enables a more holistic and culturally rooted approach to human development. Each takes imagination not as a luxury, but as a developmental necessity and together they empower people to be agents of their futures, rather than subjects of externally imposed progress. Critically, aspiration, anticipation, and imagination are capabilities that enable other freedoms. This framework, we argue, can serve to design inclusive AI and development policies that are participatory, future-oriented, and aligned with the social realities and aspirations of rural communities. In short, this framework proposes a shift from delivering innovation to co-creating futures, from designing for communities to designing with them. In doing so, it supports policies that bridge technological divides and expand the conditions for freedom, choice, and justice for a meaningful AI-mediated development.

The Dairy Industry in Nyandarua County and Its Challenges

Kenya's dairy sector supports over two-million households being vital to rural livelihoods, national food security, and the country's Vision 2030 development goals (Kimitei 2024), holding potential as a site for inclusive innovation in agriculture. However, Nyandarua's smallholder dairy farmers face structural challenges that limit their ability to thrive and adapt, including limited access to real-time market data (Communication authority of Kenya 2023)⁶, inefficient farming practices, gender inequalities, low digital literacy, and high cost of devices and data (Alliance for Affordable Technology 2022).⁷ Technological initiatives, such as mobile apps for price tracking or farming advice, have been deployed, yet uptake in rural areas remains uneven, reinforcing digital exclusion (NIR 2024)³. Smallholder farmers are highly vulnerable to climate variability due to low adoption of technological innovations (Ogundeji 2022). Without adequate technologies, these environmental challenges threaten the stability of the dairy industry.

Gender disparities further constrain the sector. Although women are key contributors to dairy farming, they face persistent obstacles; limited access to credit, land, and training; unequal control over income; and exclusion from

decision-making structures (Kobia 2011), reducing their agency and reinforcing patterns of disempowerment. Critically, smallholders, especially women, are often excluded from the policy processes that shape the sector. Their lived experience and knowledge, their aspirations and priorities, are weakly reflected in technological innovations or institutional reforms. The cumulative effect of these issues is not only economic stagnation but also aspirational marginalisation. Farmers' ability to envision and pursue better futures is likely to be constrained by systems that fail to support their participation.

Kenya's AI Policy Landscape

Kenya's approach to AI governance is evolving, situated within broader digital economy initiatives like the Digital Economy Blueprint (2019)⁸, which outlines its vision for a digitally enabled economy, with one of the pillars addressing innovation and skills. The National AI Strategy (2025)⁹, is another framework that envisions Kenya as Africa's leading AI innovation hub, driving sustainable development, economic growth, and social inclusion. Yet, these ambitions risk reinforcing existing inequalities if marginalised voices remain excluded from policy processes. Despite the constitutional mandate for public participation, the design of Kenya's AI policy has been criticised for being overly technocratic and insufficiently consultative, particularly concerning smallholder farmers and rural communities (Okello 2023; Oyango 2024). As Onyango notes, "Kenya, and Africa in general, has yet to embrace inclusive public participation practices at scale" (Oyango 2024: para 5). He argues for greater diversity of voices as it can result in more inclusive policies, and so do we. Over 70% of Kenyans live in rural areas with inadequate technological infrastructure and electricity, thereby creating a participation paradox: those most affected by AI's potential impact have the least access to policy platforms (Okello 2023). Furthermore, gender inequalities compound this exclusion. Algorithmic bias, underrepresentation of women in the AI workforce, challenges in mobile ownership, and low digital literacy among women (Gwagwa et al. 2020). These gaps not only undermine the equitable development of AI systems but limit the empowerment potential of AI-driven systems for half of the population. Critically, Kenya's AI frameworks are weak in including concrete mechanisms for futures-oriented, community-driven participation in AI policymaking. Participatory foresight methods, cultural capabilities, and anticipatory governance are elements essential for expanding the CtA and enabling meaningful public engagement in shaping AI futures.

The Case Study -Impact from the Ground: The Future of the Dairy Industry and the Role of Women and Youth in

This case study is the third stage of a multi-stage, community-led research collaboration in Nyandarua County.¹⁰ It originated in a conversation between two

community leaders (Kimani and Warui) and a researcher (Kuhn) about improving local livelihoods through dairy innovation. The community leaders wondered why there was no local cheese production despite high milk yields. This question became emblematic of a deeper constraint: for smallholders, cheese is seen as a luxury, a “rich man’s product”, placing it outside their aspirational horizon. This case study explores how smallholder farmers imagine the future of the dairy industry in an era of AI-driven innovation, and how processes like FLLs might expand their “capacity to aspire” fostering FL and inform inclusive AI policy.

Structure

We used an adapted version of the UNESCO Futures Literacy Laboratory (FLL) method, tailored for beginners who were smallholder farmers with varying literacy levels. To ensure accessibility and trust, the labs were conducted in Gikūyū, the primary language spoken in Nyandarua County. Two FLLs were held, one in Ol Kalou with 31 farmers (29 women) and another in Kinangop with 29 farmers (20 women), and two county-level livestock officials to include governance perspectives. Participants were recruited by the community leaders. Additionally, we trained 10 local champions, farmers who serve as extensionists, cooperative members, milk quality consultants, technologists and animal scientists, and financial advisors, through a one-day workshop to co-facilitate the labs.¹¹

The labs had three goals: build future capabilities, foster agency by identifying anticipatory assumptions and roles in shaping futures and promote community-led engagement with tech transformation in the sector. It followed the standard FLL four-stage process adapted as follows:

Day 1 – The first activity was to identify the current system of dairy production, including key players, constraints and opportunities, and beneficiaries. Then they worked towards **Probable Futures**: Participants were asked what they realistically believed would be the situation in the future using this prompt: Based on what you know about farming, women, and dairy production, what would the future look like in 2050? In their small groups (6 people and 2 LC) they had to come up with a headline, community approaches to get things done (systems), a worldview which included mindsets and beliefs and a metaphor which represents mindsets and beliefs, they must underpin the title or headline of their future. The tool used was causal layered analysis (CLA).¹² They shared their work with the whole group. After they engaged with **Preferred Futures**: Participants shared aspirational visions unconstrained by current limitations, and unpacked them using CLA to explore required social, economic, policy, and educational shifts. The prompt was: If you had the power and resources to do anything you desire to see happening; what would the preferred future for women and dairy production look like in 2050? They had to create the same things as previously.

Day 2: Reframed Futures: Through an afro-meditation the facilitator presented an unexpected scenario that led participants to imagine an AI-driven future scenario in which robots dominated dairy production. Each group was asked to craft a story about the robot farms of 2050 to their grandchild using dramatisation. In this stage the goal is to reveal latent assumptions and unexamined norms and their understanding of the current socio-cultural, political and economic systems, which were unpacked using CLA. **Backcasting:** Participants worked backwards from their 2050 vision in 10- and 5-year increments identifying the material, institutional, and cultural shifts required to materialise the future giving them a sense of strategic direction. The labs finished with a **collective visioning**, where participants shared and synthesised their scenarios to co-create a shared vision for an AI-enhanced dairy future, closing the lab with a sense of community solidarity.

Facilitators design the narrative prompts for the reframe stage intentionally to unsettle and challenge common assumptions and provoke imaginative thinking *outside the box*. This approach aligns with the FLL ethics of unsettling the present to make space for multiple futures. While the dairy-robot-child scenario was structured by facilitators, all dramatised outputs, and future narratives were developed by groups without steering towards specific content.

Outcomes Relevant to the Policy Recommendations in AI Futures

In both futures, the probable and the preferred, participants raised the use of sophisticated technologies to improve some aspect of the sector. For example, one group proposed the first robotic cow discovered by a Kenyan student at Kenyatta University. To make the project viable they suggested liaising with international NGOs and receiving government subsidies, so the project is sustainable. Another group imagined a women-led goat milk production instead of cow milk given its health benefits. The AI technology will produce targeted milk analysis about health benefits. They proposed a capacity building programme for women to adopt the best technology for the business and access real-time market and health data.

Policy Alternatives

- (1) This paper provides practical new alternatives to enrich national and regional AI innovation policies which should prioritise the creation of multi-stakeholder platforms for inclusive future-making, with local farmers putting women at the centre. These platforms should:
 - Be grounded in local culture, language, and storytelling enabling farmers to express their aspirations meaningfully and actionably.

- Foster collaboration between local farmers (including women), researchers, policy makers, AI/technology developers, ensuring that agricultural technologies align with lived realities and future visions.
- Invest in farmer-led education, local leadership (e.g. local champions), and civic participation, empowering communities to shape policy and technological development, not just adapt it.
- Serve as spaces where futures are imagined and negotiated, and where pathways to those futures are co-developed with those who have the power to act, such as government actors, private sector, and civil society actors.

In addition, across the eight group sketches produced in the reframed future, AI featured prominently in the form of robots, not as a threat, but as an enabler of dignity-enhancing outcomes and expanding their quality of life, e.g. time for rest and pain-free labour (in one sketch, the core message was: as robots are feeding the cows, I can rest my back and see my grandchildren more), intergenerational bonding (given the free time available thanks to the robots in the farm), shared ownership of digital and material infrastructure (imagining a communal-cooperative business model through an animal boarding farm that uses the latest technologies). This, they imagined, will allow them improving the quality and quantity of milk, thus producing cheese with a future vision of opportunities for new business, e.g. a pizza shop. Three of the skits included the phrase “we experienced a life of slavery” emphasising how the robots afford a better quality of life and more freedom.

These imagined futures reflect the community’s situated ethos around automation, care, improved health, and more control over their lives. The other side of these stories is that not one group included any problems due to the prevalence of robots, depicting everything as fantastically easy, which reveals their assumptions about socio-technical systems. As part of the emergent taken-for-granted assumptions was the fear of women to not be valued anymore, given they will not do any work at all. Their value is directly related to hard work, a myth that is clearly part of a broader socio-political discourse. There aren’t enough words to engage in a deep discussion about the underlying assumptions, but it became clear that there are, and they will need to be uncovered further to begin the process of imagining *outside the box*.

- (2) Inclusive AI Policy Design: Aspirations Shaped by Local Experiences. Participants consistently envisioned futures where AI systems improved livelihoods without eroding human dignity. Several groups imagined robotic labour replacing the physically demanding aspects of dairy work benefiting older women farmers. The narratives shared demonstrate a desire for AI to expand real freedoms, not just efficiency, emphasising well-being, autonomy, and intergenerational connection.

These stories signal how AI policy could be grounded in the lived priorities of rural communities, e.g. the capability to rest, to care, and to connect, so often invisible in urban-centric tech policy. On the other hand, these capabilities counter the neoliberal discourse of working hard to live well allowing people to choose a life they value. By integrating AI development with participatory foresight and farmer-centred design, this approach ensures that agricultural innovation is locally relevant, culturally responsive, sustainably viable, and transformative.

These outcomes illustrate how FLLs can surface policy-relevant insights from local/rural contexts. They suggest that when rural communities engage with AI futures on their own terms, they produce visions that are both imaginative and grounded, linking aspirations to practical and institutional levers of change. FLLs help farmers navigate the interplay of technology, culture, and environment, allowing them to question dominant development narratives and co-create solutions that reflect what they have reasons to value. In short, FLLs represent a generative strategy to ensure that rural farmers, especially women, are not passive recipients of technology, but rather, active architects of their own futures, inspired by their needs, aspirations and values, something Sen has always advocated for.

Notes

1. <https://www.techpolicy.press/why-the-un-ai-panel-must-include-marginalized-voices/>.
2. <https://hdr.undp.org/content/human-development-report-2025>.
3. Available from: <https://networkreadinessindex.org/countries/>.
4. Available from: https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf.
5. African Futures, 2021 interview with Feukeu and Karuri-Serbina. Available from <https://nicklaslarsen.medium.com/african-futures-with-geci-eva-28d6064e3629>.
6. Sector Statistics Report Q4 2022-2023. Available from: <https://www.ca.go.ke/sites/default/files/2023-09/Sector%20Statistics%20Report%20Q4%202022-2023.pdf>.
7. Rural Broadband Policy Framework - Alliance for Affordable Internet Available from: <https://a4ai.org/rural-broadband-policy-framework>.
8. Digital Economy – Smart Africa. Available from: <https://smartafrica.org/knowledge/digital-economy>.
9. Kenya AI Strategy 2025 - 2030. Available from: <https://ict.go.ke/sites/default/files/2025-03/Kenya%20AI%20Strategy%202025%20-%202030.pdf>.
10. For more details go to <https://www.afa-k.org>.
11. Two external facilitators, Fisayo Oyewale (UNICEF foresight consultant and agriculturist) and Julius Gatune (UNESCO Chair for Futures Literacy for the East African Region), led the sessions. Kimani and Warui who are part of the research team, served as interlocutors. This structure ensured both local ownership and methodological rigour.
12. We refer the interested reader to the work of Inayatullah who has developed this extensively in the context of FLLs, c.f. Inayatullah, S. 2004. *The Causal Layered Analysis (CLA)*. Reader. Tamkang University.

Notes on contributors

Caroline Kuhn's research sits at the intersection of education, sociology, philosophy and digital technology with an emphasis on critical pedagogy. Her work advances critical and social justice approaches in digital, open and higher education contexts. Her values and commitment to open practices and research in open education have been recognised internationally. Driven by a concern for social justice and informed by critical pedagogy, she has led high-impact international collaborations that include matters of critical data literacy and explorations from the ground of the futures of the dairy industry in Kenya and the role of women in it. These projects are testament to her commitment to community-centred education for rural communities at the margins of development.

Mary Warui holds a PhD in management of agroecosystems and environment. She has participated in various research projects focusing on community baseline surveys, community livelihoods, training needs assessment, capacity building, climate resilience, incentives for conservation of biodiversity and natural resources, value chain analysis, wildlife conservation, degraded ecosystems for restoration, valuation of ecosystem services, agriculture and rural inclusive and participatory scenario planning. Mary works as a biodiversity specialist at Kipeto Energy PLC, in Kenya. She conducts research and implements conservation mitigation measures. She also works with Friends of Kinangop and Olerai Community Wildlife Conservancy, both community-based organisations, in various activities on agroecosystems and livelihoods. She is one of the founders of Awakening Futures Africa, a Kenyan NGO interested in exploring alternative futures with rural farmers

Dominic Kimani holds a master's degree in wildlife management from the University of Eldoret and is currently pursuing a PhD in Environmental Biology at Karatina University in Kenya. He serves as the head of the Biodiversity Department at Kipeto Energy, overseeing ecological research and mitigation efforts. Kimani's extensive research experience encompasses diverse projects focused on biodiversity, natural resources conservation and resource use planning, wildlife management, sustainable agriculture, indigenous knowledge systems, livelihoods, and human ecology. He is also affiliated with Friends of Kinangop Plateau, community-based organisation in the rural central Kenya, as a resident research associate in the conservation and monitoring department. He also one of the founders of Awakening Futures Africa, a Kenyan based NGO interested in exploring alternative futures of local farmers.

Fisayo Oyewale is an agriculturist, a Futurist, and a Facilitator working at the intersection of agriculture, technology, youths, and futures. As a foresight practitioner, she uses strategic foresight methodologies to rethink Africa's futures in data governance, food systems, youth engagement, and artificial intelligence for development. She is a UNICEF Youth Foresight Senior Fellow, a 2021 Tony Elumelu Foundation Entrepreneur, a Young Africa Leadership Initiative RLC Fellow, and one of 100 delegates at the Global Youth Agriculture Summit 2021.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

ORCID

Caroline Kuhn  <http://orcid.org/0000-0003-0393-6093>

References

- Abegunde, Victor, and Ajuruchukbu Obi. 2022. "The Role and Perspective of Climate Smart Agriculture in Africa: A Scientific Review." *Sustainability* 14:2317. <https://doi.org/10.3390/su14042317>.
- Appadurai, Arjun. 2004. "The Capacity to Aspire: Culture and the Terms of Recognition." In *Culture and Public Action*, edited by Rao Vijanyendra and Walton Michael, 59–84. Stanford, California: Stanford University Press.
- Biggeri, Mario, J. Ballet, and F. Comim. 2011. "Final Remarks and Conclusions: The Promotion of Children's Active Participation." In *Children and the Capability Approach*, edited by M. Biggeri, J. Ballet, and F. Comim, 22–45. Palgrave Macmillan.
- Gwagwa, Authur, Erika Kraemer-Mbula, Nagla Rizk, Isaac Rutenberg, and Jeremy De Beer. 2020. "Artificial Intelligence (AI) Deployments in Africa: Benefits, Challenges and Policy Dimensions." *The African Journal of Information and Communication (AJIC)* 26 (26): 1–28. <https://doi.org/10.23962/10539/30361>.
- Kimitei, Allan. 2024. "Overview of the Kenya Dairy Industry." *Global Agricultural Information Network and USDA*. Online.
- Kobia, Silas. 2011. *The Co-Operative Movement in Kenya: Challenges and Opportunities*. Lukiko Consulting Trust.
- Kyule, Grace, and Judith Nguli. 2020. "Exploring Kenya Dairy Industry for Job Creation for the Youth." *KIPPRA Discussion Paper No. 232*. KIPRA.
- Mausch, Kai, Dave Harris, Luke Dilley, Mary Crossland, Tim Pagella, Jules Yim, and Emma Jones. 2021. "Not All about Farming: Understanding Aspirations Can Challenge Assumptions about Rural Development." *The European Journal of Development Research* 33 (4): 861–884. <https://doi.org/10.1057/s41287-021-00398-w>.
- Mbugua Ibau, Filbert. 2023. *Kenya: Leveraging Youth Inclusive Development and Resilience. Policy Briefing*. Nairobi: South African Institute for International Affairs (SAIIA).
- Miller, Riel. 2018. *Transforming the Future. Anticipation in the 21st Century*. Taylor & Francis.
- Nussbaum, Martha. 2000. *Women and Human Development. The Capability Approach*. Cambridge, UK: Cambridge University Press.
- Ogundeji, Abiodun A. 2022. "Adaptation to Climate Change and Impact on Smallholder Farmers' Food Security in South Africa." *Agriculture* 12 (5): 589. <https://doi.org/10.3390/agriculture12050589>.
- Okello, Frederik. 2023. "Bridging the Digital Divide: Context, Barriers, and Strategies." The Digital Policy Hub at the Centre for International Governance Innovation. Online.
- Oyango, Willice. 2024. "How People Could Shape the Future of AI in Kenya." Adalovelaceinstitute.org. 2024. <https://www.adalovelaceinstitute.org/blog/people-shape-future-of-ai-kenya/>.
- Scordato, L., P. Koch, and R. Miller. 2021. "Futures Literacy in Transformative Innovation Policy." TIPIC. Innovation for transformation.
- Sen, A. 1999. *Development as Freedom*. New York, NY: Anchor.