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Framing the Schemata: Western Media Coverage of African Technological Innovations

Gregory Gondwe [1,2]

[1] Department of Communication & Media, California State University, San Bernardino, CA 92407, USA; gregory.gondwe@csusb.edu
[2] Berkman Klein Center for Internet and Society, Harvard University, Cambridge, MA 02138, USA

Abstract: This study examines the framing of African technological innovations in Western media over the past two decades (2003–2023), focusing on four case studies: M-Pesa, LifeBank, FarmDrive, and NigeriaSat-1. Using a qualitative research design that integrates content analysis and framing theory, we analyze how major media outlets, including the BBC, CNN, *The Guardian*, Reuters, and *The New York Times*, represent African innovations. The analysis reveals that media coverage tends to frame these innovations primarily through a humanitarian lens, emphasizing their role in addressing poverty, healthcare, and food security challenges. While highlighting the social impact of these technologies, this narrative often overlooks their broader potential for global scalability and industry disruption. To complement the content analysis, we conducted 24 semi-structured interviews with tech entrepreneurs, media professionals, and scholars from Kenya, Ghana, Nigeria, and Senegal, investigating their perspectives on how Western media coverage impacts investment and collaboration in African technological sectors. The interview findings confirm that such media portrayals hinder international investment and partnership opportunities by reinforcing the narrative that African technologies are primarily crisis management tools, rather than innovative solutions with global market potential. This article argues for a shift in this narrative, recommending policies that include strategic media advocacy, enhanced public relations, and increased investment in Research and Development.

Keywords: African technological innovations; Western media representation; humanitarian lens; global scalability; stereotypes

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1. Introduction

Africa's technological innovation is diverse, creative, and impactful, yet it remains marginalized in global narratives (Adegoju 2017; Bunce et al. 2016; Manning 2015). From fintech innovations that have revolutionized financial inclusion to healthcare technologies that save lives in remote regions, African contributions are critical to the global technological landscape. However, the developed world often minimizes these contributions, framing them as reactive solutions to crises rather than recognizing their broader significance. According to Mahadeo and McKinney (2007), this lack of acknowledgment can stymie the growth of African industries, including space exploration, and curtail opportunities for international collaboration. This marginalization also perpetuates the stereotype that Africa is perpetually dependent on external aid and solutions, thus undermining its role as an innovator.

Technologies like M-Pesa, a mobile money platform that has transformed financial transactions in Kenya and across the continent, and LifeBank, a Nigerian health logistics company that delivers life-saving medical supplies, have fundamentally reshaped how Africans engage with digital economies and healthcare. Moreover, FarmDrive has made significant strides in using big data to provide farmers with access to credit, while NigeriaSat-1, the first satellite launched by Nigeria, has contributed to disaster monitoring

and climate change mitigation on a global scale. These technologies are not just reactive measures but proactive, cutting-edge innovations that address local challenges while also contributing to global advancements in telecommunications, healthcare, agriculture, and space exploration (Okunade et al. 2023). Yet these breakthroughs often go under-reported or are framed within a crisis response context, rather than being recognized as part of a larger movement toward technological self-sufficiency and innovation. Western media, in particular, plays a crucial role in shaping global perceptions of African technologies (Gondwe 2023, 2024a; Bodziany and Nowakowska 2020; Ogunyemi 2018). The media's tendency to emphasize Africa's technological efforts as responses to poverty, disease, or political instability reinforces a narrative of dependency and underdevelopment.

This study investigates how such representations in the media contribute to a skewed understanding of Africa's technological trajectory, perpetuating stereotypes and downplaying the continent's broader role in the global innovation ecosystem. In examining the role of media representation in shaping global perspectives, this chapter will explore how these portrayals affect the perception and subsequent investment in African technological industries. African space exploration efforts, for example, have been pivotal in advancing climate monitoring and disaster response, yet they often receive little attention compared to the space programs of more industrialized nations. NigeriaSat-1, launched in 2003, played a critical role in providing satellite imagery for global disaster relief, including after Hurricane Katrina, but such contributions are often overshadowed in Western discourse (Damilola 2022). This lack of recognition not only impacts global perceptions but also influences policy decisions, investment opportunities, and Africa's positioning in international collaborations. Through this investigation, the chapter will challenge the dominant narrative of Africa as a continent of perpetual crisis and dependency, presenting instead a vision of African technology as proactive, solution-driven, and globally significant.

2. Literature Review

2.1. Africa's Technological Innovation and Misrepresentation

Africa has witnessed rapid technological development over the last few decades, with significant advancements in fintech, healthcare, agriculture, and space exploration. However, the recognition of these contributions is often overshadowed by entrenched narratives that frame the continent primarily in terms of crises, poverty, and dependence on external aid. Scholars such as Mahadeo and McKinney (2007) highlight that Western media narratives tend to reinforce these stereotypes, framing African innovations as reactive solutions to problems rather than forward-thinking contributions to global technological progress. The arguments are consistent with Serwornoo's (2019) examination of how Western media's portrayal of Africa exerts influence and Nothias' (2018) observation of how "Western journalists actually write about Africa". This skewed representation, which is prevalent in both media and academic literature, raises critical questions about whose stories are being told and how global perceptions are shaped.

Latour (2007, 2011), in his actor–network theory, offers a lens through which to understand the relationship between technology and society, positing that individuals are not just passive consumers of technology but active co-creators. This view is mirrored in Nemer's (2024) *Technology of the Oppressed* and Gondwe's (2024b) "Digital Native; Digital Activist", both of which emphasize the role of marginalized communities in producing context-specific technological solutions. The African continent, therefore, emerges as a site of active technological creativity, though this reality is often obscured by dominant narratives that focus on humanitarian needs rather than systemic innovation.

2.2. Financial Technology (Fintech) and Innovation with Global Impact

Perhaps the most well-known example of African technological ingenuity is Kenya's M-Pesa, a mobile banking platform that has revolutionized financial services across the continent. Initially launched in 2007, M-Pesa enabled millions of unbanked individuals to access financial services through their mobile phones. Ndung'u (2018) describes M-Pesa as

a leapfrogging technology, which allowed Africa to bypass the need for an extensive traditional banking infrastructure. Its success, noted in over 50 million users across countries such as Kenya, Tanzania, and Ghana (Ngugi et al. 2010), exemplifies how African innovation can disrupt traditional industries, challenging global banking systems. However, despite its transformative potential, Western media has often framed M-Pesa as a tool for poverty alleviation rather than as a globally disruptive technology. For instance, a BBC News (2017) article highlights M-Pesa's ability to "lift families out of poverty", which, while accurate, narrows the narrative by overlooking its role in transforming global financial practices. This portrayal underscores a common trend in the media, where African innovations are valued primarily for their humanitarian impact rather than for their potential to reshape entire industries. Suri et al. (2023) further argue that the focus on M-Pesa's social benefits distracts from its broader economic significance, including its role in fostering entrepreneurship and economic growth across the continent.

Other fintech innovations, such as Flutterwave and Paystack, have also demonstrated Africa's capacity for global impact. These Nigerian companies have facilitated seamless cross-border payments, enabling African businesses to participate more effectively in the global economy. As Ahmed et al. (2023) indicates, Flutterwave's ability to process over 200 million transactions with a total value exceeding USD 16 billion by 2022 speaks to the scalability and success of African fintech. Yet, much like M-Pesa, the broader global media coverage of these innovations tends to focus on their localized benefits rather than their capacity to influence global financial systems.

2.3. Healthcare Technology: Addressing Systemic Barriers with Innovation

When it comes to healthcare technology, African innovators have developed worthy noting solutions to address systemic barriers such as geographic isolation and resource constraints. Companies like Zipline and LifeBank have leveraged cutting-edge technologies to improve healthcare logistics, with Zipline using drones to deliver medical supplies to remote areas in Rwanda and Ghana (Adelowo et al. 2023). Similarly, LifeBank, founded by Temie Giwa-Tubosun in Nigeria, uses real-time data analytics to ensure the timely delivery of blood, oxygen, and other medical supplies to hospitals (Faheem and Dutta 2023).

While these technologies have been lauded for their ability to save lives, media narratives often reduce them to emergency solutions rather than recognizing their potential for creating sustainable healthcare systems. For example, CNN described LifeBank as a "lifeline for remote regions", focusing on its role in crisis response but neglecting its potential to transform healthcare logistics in both urban and rural areas (Salaudeen 2019). This type of framing fails to consider the broader implications of LifeBank's data-driven model, which has the potential to streamline healthcare logistics not just in Africa but globally. The broader coverage misses a critical point: African innovations are not merely reactive but are proactively creating long-term solutions that address deeply entrenched systemic challenges. This reflects what Chouliaraki (2013) refers to as the "humanitarian imaginary", where African technologies are framed solely in crisis management terms, which diminishes their broader technological significance.

2.4. Agricultural Technology and the Revolutionizing Farming Practices

Technological innovations in African agriculture are similarly framed in a limited way, often presented as necessary responses to food security crises rather than groundbreaking advancements with global relevance. For instance, FarmDrive, a Kenyan startup that uses data analytics to help smallholder farmers access credit, has transformed agricultural practices by enabling farmers to invest in improved seeds and equipment (Kim et al. 2020). The potential of FarmDrive to enhance agricultural productivity and sustainability is immense, yet Western media outlets often focus on its humanitarian aspect—how it helps "poor farmers"—rather than its use of big data as a driver of innovation.

Hello Tractor, another Nigerian initiative, allows smallholder farmers to rent tractors through a mobile platform, thus lowering the cost of mechanization and increasing farming

efficiency (Kim et al. 2020). Once again, while such innovations are presented as efforts to solve local problems, they are seldom acknowledged for their broader potential to contribute to global agricultural practices. This reflects Mpofu et al. (2006), who critique the "developmentalist lens" often used by international media, which focuses on Africa's perceived deficiencies rather than its role in advancing global technology.

2.5. Space Technology and African Contributions to Global Science

Perhaps one of the most overlooked areas of African technological development is in space exploration. Countries like Nigeria and South Africa have made significant strides in developing satellite technology for use in telecommunications, climate monitoring, and disaster management. Nigeria's NigeriaSat-1, launched in 2003, provided critical satellite imagery for global disaster relief efforts, including after Hurricane Katrina in the United States (Adelowo et al. 2023). However, this significant contribution was downplayed in Western media, with outlets such as The Economist (2021) questioning why African nations invest in space exploration when poverty and development challenges persist. This narrow focus perpetuates the narrative that Africa should prioritize solving its internal problems rather than contributing to global scientific efforts.

Yet, as (Adetola 2023) argue, African space programs play a critical role in global environmental monitoring, agricultural productivity, and climate change mitigation. By under-reporting Africa's contributions to space technology, the media limits the visibility of these programs, undermining their significance on the global stage.

2.6. The Role of Media in Shaping Global Perceptions of African Innovation

The literature points to the pervasive role that media representation plays in shaping global perceptions of African technological innovation. Scheufele and Tewksbury (2007) argue that media framing influences not only public perceptions but also policy decisions and investor confidence. When African technologies are consistently framed as reactive solutions to crises, their potential to attract international investment and partnerships is diminished. This sentiment is echoed by Couldry and Hepp (2020), who suggest that media visibility is crucial for establishing technological leadership. Without sufficient recognition from international media, African innovators may struggle to gain the credibility needed to scale their innovations on the global stage. In short, while the existing studies focus on the profound technological advancements emerging from Africa, they also reveal a significant gap in how these innovations are framed, particularly in Western media narratives that tend to focus narrowly on their humanitarian impact. The oversimplified portrayals undermine the broader potential of African technologies and diminish their global relevance.

3. Framing Theory

Framing theory examines how certain elements of a message are selected, emphasized, and structured to shape public perception. According to Entman's (1993) influential definition, framing involves choosing "some aspects of a perceived reality and making them more salient in a communicating text" (p. 52). Essentially, framing guides the audience's understanding by focusing attention on specific elements while excluding others. This, in turn, influences how people interpret and respond to the information presented. The analogy often used is the "picture frame". Similar to a frame capturing only part of an image, media framing highlights particular aspects of a story to focus within confined boundaries and set the tone for how the audience perceives it (Hallahan 2011).

While Entman (1993) contends that framing helps "promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation" (p. 52), it is important to distinguish framing itself as a message production process. This process shapes how a message is constructed but is separate from framing effects, or the outcomes on audiences' attitudes and beliefs. The choices made during framing can be either intentional or unintentional, influenced by editorial policies, cultural norms, or individual biases (Hallahan 2011). In media contexts, framing becomes a powerful tool

that shapes not only the information presented but also how the audience interprets it. Journalists and content creators decide which details to highlight and how to structure narratives, often to align with organizational values, target audiences, or prevailing cultural norms. This decision-making process ultimately molds public perception by emphasizing certain viewpoints while downplaying others, making framing central to how media shapes social understanding.

Framing Theory in the Context of African Technological Innovation

In the case of African technological innovation, framing provides a lens into how Western media narratives influence global perceptions of Africa's contributions to technology. Often, Western media portrays Africa through a lens of crisis, focusing on humanitarian needs, poverty alleviation, and dependency on external support (Bunce et al. 2016). These narratives limit how the world perceives Africa's technological advancements and reinforce the perception that African technological advancements are driven primarily by necessity rather than innovation. As a result, the global understanding of Africa's contributions to technology is narrowed in scope to only reflect the crisis, dependency, and humanitarian frames.

The emphasis on crisis in framing Africa's technological innovation has a profound impact on public perception and policy. According to Ogunyemi (2018), this crisis-driven narrative not only influences how audiences view African technological contributions but also affects the willingness of foreign investors and governments to engage with African technology sectors. When Western media highlights African innovations primarily for their humanitarian value, it also reinforces a narrative of dependency, suggesting that African advancements are only significant insofar as they address pressing social issues. This framing, while acknowledging Africa's capacity to respond to crises, inadvertently diminishes its agency and autonomy as a global innovator. The result is an obscured potential of Africa as a model for other regions grappling with financial inclusion. In addition to crisis, dependency, and underdevelopment are prevalent frames in Western media coverage of African technological innovation. These frames, according to Mpofu et al. (2006), depict Africa as a region constantly requiring foreign intervention and support, thus perpetuating a narrative of technological inferiority. When African innovations are framed in terms of dependency, the emphasis shifts from Africa's agency and resourcefulness to its supposed reliance on Western expertise or funding. This kind of framing positions African technological advancements as products of Western intervention rather than homegrown innovations driven by local needs and expertise. It further implicitly suggests that African nations should focus on resolving internal issues before venturing into fields typically dominated by industrialized countries. Another common frame used in the portrayal of Africa is the humanitarian frame, which aligns closely with a developmental perspective that emphasizes Africa's need for aid and improvement. Chouliaraki (2013) describes this as the "humanitarian imaginary", wherein African technologies are primarily valued for their potential to alleviate suffering or manage crises rather than for their broader contributions to innovation. Under this kind of framing, African innovations are perceived as tools for survival and crisis management. This results in the notion that Africa requires constant humanitarian aid rather than a hub of innovation capable of producing technologies with transformative potential.

To counteract the limitations of the crisis, dependency, and humanitarian frames, this study proposes an innovation frame that emphasizes Africa's role as an autonomous, creative force in global technology. The innovation frame focuses on African technologies as proactive contributions that address both local and global challenges, emphasizing their relevance beyond humanitarian or crisis contexts. This alternative framing could reframe M-Pesa as a model of fintech innovation with global implications, or present LifeBank as a pioneering logistics solution that has the potential to reshape healthcare delivery around the world. An innovation frame would also encourage media narratives that highlight Africa's agency, ingenuity, and leadership in technology, therefore supporting

a more accurate and empowering portrayal of African innovation. Such a shift could increase international recognition of Africa's contributions to technology and foster global partnerships, investment, and collaboration that value African technologies for their impact on industries beyond crisis response. But how do we arrive at such a form of frame? To address these gaps, the following research questions are proposed:

RQ1: How do Western media outlets frame African technological innovations, such as M-Pesa, LifeBank, FarmDrive, and NigeriaSat-1, in their coverage of news?
RQ2: To what extent does the media representation of African innovations perpetuate stereotypes of the continent as being primarily dependent on humanitarian aid?
RQ3: In what way do these portrayals affect international investment and collaboration with African technology sectors?
RQ4: What alternative narratives can be developed to better position African innovations within the global technological Environment?

These questions aim to assess the media's role in shaping global perceptions and explore strategies for a more equitable representation of Africa's technological contributions.

4. Materials and Methods

To examine how Western media frames African technological innovations, a qualitative content analysis informed by framing theory is an ideal methodological approach. This approach enables a detailed examination of textual and visual elements in media content, capturing how specific framing choices highlight or downplay various aspects of African technological achievements. The goal of using framing theory as a methodological lens is to systematically identify and analyze the dominant narratives and themes that shape perceptions, allowing us to understand how certain frames influence public understanding and potentially reinforce stereotypes.

4.1. Data Collection and Content Analysis

Content analysis data were collected through a systematic search of online archives and databases using key terms such as "M-Pesa", "LifeBank", "FarmDrive", "NigeriaSat-1", and "African technological innovation". The search spanned publications from 2003 to 2023, ensuring the collection of articles that explicitly discuss the impact and framing of these innovations in Western media. Major media outlets, including BBC, CNN, *The Guardian*, Reuters, and *The New York Times*, were chosen due to their global reach and influence on international perceptions. Articles were filtered for relevance, focusing on those that contained substantial discussions of the technological contributions and impact of these African innovations. After collecting the articles, a thematic content analysis was conducted to identify recurring themes in the framing of African technologies. Articles were categorized based on two overarching themes: humanitarian framing, where innovations are portrayed as reactive solutions to crises such as poverty, healthcare, and food insecurity; and global scalability framing, where the technological potential and industry disruption capabilities of these innovations are highlighted.

4.2. Sampling of Interviews[1]

To complement the content analysis, we conducted 24 semi-structured interviews with key stakeholders, including tech entrepreneurs, media professionals, and scholars specializing in African innovation. The interviews were sampled purposively from four African countries: Kenya, Ghana, Nigeria, and Senegal. These countries were selected for their diverse technological landscapes and the prominence of innovations such as M-Pesa, LifeBank, and other tech solutions that have gained international attention. The participants included six interviewees from each country, ensuring a balanced representation of perspectives from across different sectors. The interviews explored participants' views on Western media coverage, the influence of these narratives on their work, and potential strategies for reframing African technological innovations in the global media.

The sampling process was guided by the principle of maximum variation sampling, where participants were chosen to capture a range of experiences, including those of tech entrepreneurs directly involved in innovation, media professionals who engage with the coverage of these innovations, and scholars who study media representation and African technology. This allowed this study to gather a broad spectrum of insights into the challenges and opportunities associated with media framing and its impact on African technological sectors.

4.3. Data Analysis Using NVivo

Once the content analysis data and interview transcripts were collected, the data were imported into NVivo, a qualitative data analysis software, for coding and analysis. Using NVivo allowed us to systematically code the data and categorize the framing narratives based on the identified themes. A coding scheme was developed, with four primary categories: humanitarian framing, global scalability framing, stereotypical representation, and recognition of global impact. Sub-codes within these categories helped to break down the nuances of each theme, such as identifying whether articles emphasized poverty alleviation, healthcare, or disruptive potential in their coverage of African innovations. NVivo enabled us to track the frequency of certain frames across the dataset, providing quantitative insights into how often particular narratives appeared in Western media's coverage of the selected case studies. For example, we were able to count how many times M-Pesa was framed as a tool for financial inclusion versus a disruptor in global financial services. The software also facilitated cross-referencing between different sources, allowing for the comparison of media narratives across multiple outlets and over time.

Additionally, NVivo was used to analyze the interview transcripts and to code responses from the 24 participants based on their experiences with media representation. The coding allowed us to identify key patterns in how tech entrepreneurs, media professionals, and scholars perceive the framing of African innovations. For instance, several entrepreneurs highlighted how Western media's emphasis on humanitarian impact affects their ability to attract international investors.

4.4. Coding Categories and Frame Analysis

To apply framing theory effectively, the content analysis involved a deductive–inductive coding process. Based on the existing literature and theoretical insights from framing theory, certain frames are anticipated in advance, such as the humanitarian frame, crisis response frame, and dependency frame. These frames are commonly found in Western media coverage of Africa and provide an initial structure for analyzing how African technologies are presented. Each frame has specific indicators (e.g., references to poverty alleviation, crisis relief, external aid) that guide the initial coding.

During the analysis, new frames and themes emerged that were not anticipated. This inductive approach allows for flexibility in capturing unexpected narratives that might influence the portrayal of African innovations. For example, frames emphasizing innovation leadership and technological independence came up and provided a contrast to more stereotypical portrayals. As a result, we established coding categories to capture the core elements of each frame, based on Entman's (1993) concept of framing as "selecting some aspects of a perceived reality and making them more salient". Key coding categories would include the following: 1. Problem Definition: How is the purpose of the technology defined? Is it framed as solving a local crisis (e.g., poverty, health, food security) or as a disruptive technology with broader implications? 2. Causal Interpretation: What underlying causes are attributed to the need for this technology? For example, are African technologies portrayed as responses to external limitations or as innovations driven by local expertise and agency? 3. Moral Evaluation: What judgments or values are implied about the technology? Is there an implicit suggestion that African technology is less sophisticated or that African nations should prioritize other concerns over technological advancement? And 4. Treatment Recommendation: Does the article recommend specific solutions or

collaborations? For instance, are partnerships with Western institutions portrayed as essential, or is the focus on African-led initiatives? Each of these categories allowed for a systematic examination of how frames are constructed, highlighting specific linguistic choices, thematic emphases, and visual elements that shape public understanding.

5. Results

This study examined how Western media outlets frame technological innovations from Sub-Saharan Africa. Essentially, we examined how Western media outlets frame technological innovations from Sub-Saharan Africa, focusing on the cases of M-Pesa, LifeBank, FarmDrive, and NigeriaSat-1. Through a qualitative research design, combining content analysis and framing theory, they found that Western media predominantly frame African innovations through a humanitarian lens. The frames tend to focus on African technology's role in addressing local social issues rather than their potential to participate on a global scale. We argue that such kind of framing perpetuates stereotypes of Africa as a continent dependent on humanitarian aid and limits the recognition of African technologies as globally competitive. Below are the detailed findings.

5.1. How Do Western Media Outlets Frame African Technological Innovations, Such as M-Pesa, LifeBank, FarmDrive, and NigeriaSat-1, in Their Coverage?

RQ1 aimed to explore the dominant narratives used by Western media when portraying African technological innovations. It aimed to determine whether these technologies were portrayed as local humanitarian responses or as globally relevant, industry-shaping developments. The analysis showed that Western media consistently frames African innovations through a humanitarian lens, focusing on their roles in addressing poverty, healthcare, and food security rather than highlighting their broader technological significance. For example, in a BBC article, M-Pesa was portrayed as "an innovative solution lifting families out of poverty by providing access to financial services" (BBC News 2017), emphasizing its role in poverty alleviation over its transformative impact on the global financial sector.

Similarly, CNN's coverage of LifeBank described it as "a lifeline for remote regions of Nigeria, delivering crucial medical supplies in life-threatening situations" (Salaudeen 2019), focusing primarily on its humanitarian value rather than its potential to revolutionize healthcare logistics. This pattern continued with FarmDrive, as a TechCrunch article highlighted its capacity to "help smallholder farmers access credit, enabling them to escape cycles of poverty and food insecurity" (Kene-Okafor 2023), while ignoring its innovative approach to integrating big data for agricultural finance. Coverage of NigeriaSat-1 reflected the same frame, with Reuters focusing on its role in disaster management and local crisis response rather than its contributions to advancing global space exploration. This predominant narrative presents African innovations as crisis management tools rather than as cutting-edge technologies with the capacity for industry-wide disruption, which obscures their global scalability and impact.

5.2. To What Extent Does the Media Representation of African Innovations Perpetuate Stereotypes of the Continent as Being Primarily Dependent on Humanitarian Aid?

The objective of RQ2 was to assess how Western media frames Africa's technological developments within broader narratives of dependency. We examined whether media coverage emphasizes Africa's dependency on humanitarian support and positions African innovations as reactive solutions to immediate needs rather than proactive contributions to global technology. The findings indicate that Western media often perpetuates the stereotype of Africa as a continent primarily dependent on humanitarian aid, reinforcing the notion that African technologies exist to address local crises rather than contribute to global advancements. For instance, a *Guardian* article about M-Pesa described it merely as "a tool for the unbanked", neglecting its disruptive influence in the global financial sector (Leach 2015). This portrayal reduces M-Pesa to a local poverty solution, overlooking its potential for broader applications in financial services worldwide.

Similarly, Reuters' coverage of NigeriaSat-1 questioned the appropriateness of African investments in space technology, asking, "Should Nigeria really focus on space while it still battles poverty and underdevelopment?" (Reuters 2018). Such framing diminishes the relevance of African innovations by suggesting that advanced technological pursuits are luxuries Africa cannot afford. This representation limits Africa's potential role as a hub of innovation and positions African technologies as mere crisis management tools rather than groundbreaking contributions to global industries. A Kenyan entrepreneur expressed frustration with this narrative, stating, "When we talk to investors in Europe or the U.S., they are always surprised that we're not just solving problems like hunger or poverty. The media frames it that way, and that's how they see us" (Interviewee 1, Nairobi, Kenya). This sentiment underscores the challenges African innovators face in overcoming stereotypes that are continuously reinforced by Western media's emphasis on crisis management and dependency.

5.3. How Do These Portrayals Affect International Investment and Collaboration with African Technology Sectors?

RQ3 examined the broader implications of Western media framing on international perceptions, specifically focusing on how such portrayals might influence foreign investment and global collaboration. We aimed to understand whether portraying African technologies primarily through a humanitarian lens affects their appeal for global partnerships, funding, and market expansion. The findings reveal that Western media's humanitarian framing of African innovations significantly affects their perception as scalable, globally competitive solutions, subsequently impacting international investment and collaboration. For instance, although M-Pesa's mobile banking model has found applications beyond Kenya, including in India and Romania, most Western media coverage continues to emphasize its role in providing financial inclusion within Kenya.

A *New York Times* (NYT) article mentioned M-Pesa's influence in countries like India but primarily focused on its contribution to poverty alleviation in Africa (Popper et al. 2017). This narrow focus limits the perception of M-Pesa as a disruptive technology with the potential to reshape global financial systems. This framing affects the attractiveness of African technological sectors to international investors who are looking for scalable, high-growth opportunities. One expert in Nigeria noted, "Western investors don't always see the full potential of our technologies because the media frames them as local solutions. This affects how much funding we can raise and the types of partnerships we can build" (Interviewee 2, Lagos, Nigeria). Such limited framing not only diminishes investor interest but also influences international policy decisions and collaboration opportunities. The media's humanitarian framing reinforces the notion that African technologies serve primarily local needs, reducing the level of strategic investment necessary for global expansion.

5.4. What Alternative Narratives Can Be Developed to Better Position African Innovations Within the Global Technological Environment?

RQ4 sought to identify potential alternative narratives that could help reposition African technological innovations within the global arena. Our analysis suggests that shifting the narrative to emphasize African innovations' scalability, disruptive potential, and cutting-edge capabilities could help reposition these technologies as competitive players in the global market. One alternative narrative is to emphasize the technological leadership and industry disruption of African innovations. For instance, M-Pesa should be framed not just as a tool for financial inclusion in Africa, but as a global financial disruptor that has pioneered mobile banking models now adopted worldwide. As an entrepreneur from Kenya explained, "M-Pesa is not just helping Kenyans; it's a model that's transforming the financial sector in other parts of the world. This is what we need to emphasize" (Interviewee 3, Nairobi).

Similarly, LifeBank can be framed as an innovative healthcare logistics company with the potential to revolutionize medical supply chains globally, rather than just a solution for delivering blood in remote regions of Nigeria. A more global narrative would position

LifeBank as a healthcare disruptor capable of improving supply chain efficiency in both developed and developing countries. In terms of media strategy, African governments, tech companies, and innovators should take a more proactive role in shaping the media narrative. This could involve collaborating with African-owned media outlets to amplify the global relevance of African innovations. Rather than as local solutions to humanitarian challenges, African innovators can reshape how their contributions are perceived by positioning these technologies as part of the global technology ecosystem. Additionally, there is a need for strategic communication and public relations initiatives that emphasize the global scalability of African innovations. For example, African tech companies could adopt international PR strategies to highlight the broader implications of their technologies in areas such as fintech, healthcare logistics, and space exploration. Press releases, interviews, and media appearances should focus on the global applications of African technologies, framing them as cutting-edge solutions with the potential to disrupt industries far beyond the African continent. Finally, international collaborations should be promoted to increase African tech's visibility in global markets. Governments and businesses should incentivize joint ventures and research partnerships with global tech companies and universities, positioning Africa as a key player in driving technological advancements.

5.5. Discussion and Policy Implications

The ongoing discourses on Western media's representation of Africa's participation in technology suggest several lines of research that need to be taken up more strongly. The discussions above demonstrate that international media, particularly Western outlets, often frame African technological innovations through a predominantly humanitarian lens. We argue that while this perspective acknowledges the immediate social benefits of these technologies, it overlooks their broader potential and global relevance. The Western media's focus on the humanitarian impact of African technological innovations aligns with existing scholarly debates on media representation and the perpetuation of stereotypes.

Scholars have long argued that international media coverage of Africa often frames the continent as a place defined by poverty, conflict, and underdevelopment (Gondwe 2022; Wamukekhe 2024; Wahutu 2024). As observed in the case of M-Pesa, media outlets such as the BBC framed the innovation as a tool for social empowerment, focusing on how it "gave women in Kenya a new sense of financial independence". While this narrative acknowledges the platform's role in financial inclusion, it reduces the innovation to a local solution for poverty rather than a technological breakthrough with global implications for the banking industry (Wamukekhe 2024). This type of framing perpetuates the "developmentalist" lens through which Africa is often viewed, where innovations are recognized primarily for their ability to solve local crises (Mabweazara 2010; Mpofu et al. 2006; Moyo and Mutsvairo 2018). As Nyamnjoh (2015) contends, this one-dimensional portrayal fails to account for the complexity of African technological landscapes, reinforcing the idea that African innovations are reactive rather than proactive.

Further, the emphasis on the humanitarian impact of LifeBank and FarmDrive similarly reflects this tendency. Both innovations were lauded for their ability to address pressing social needs—delivering blood to remote regions and providing credit access to smallholder farmers, respectively. While these are important achievements, the Western media's narrow focus on these aspects mirrors what Chouliaraki (2013) refers to as the "humanitarian imaginary", wherein African innovations are framed as being solely aimed at crisis management. This diminishes their broader technological significance, reducing their visibility on the global innovation stage. Despite the marginalization of African technological innovations, local communities across the continent have developed a wide range of mundane technologies to address their daily challenges. Nemer's (2024) concept of "technology of the oppressed" provides a useful framework for understanding how African communities use mundane technologies to solve local problems. These technologies may be low-tech, but they are highly effective in addressing specific challenges. For example, solar-powered mobile phone charging stations are prevalent in rural areas with limited

electricity access, enabling people to stay connected even in off-grid regions (Sibanda et al. 2023). Similarly, treadle pumps used by smallholder farmers are simple but effective tools that enhance irrigation and boost agricultural productivity in areas where mechanized equipment is not available (Suri and Udry 2022). These mundane technologies demonstrate that African communities are not merely passive consumers of foreign technology but active agents in creating solutions tailored to their specific environments. Nemer (2024) argues that these technologies are forms of resistance against the limitations imposed by both local and global power structures, allowing African communities to exercise agency in shaping their technological futures.

5.6. Implications for African Technological Development and Global Innovation Ecosystems

To address these challenges, several policy interventions are necessary to promote a more accurate and balanced representation of African technological innovations. First, African governments, regional organizations, and innovators themselves must take a more proactive role in shaping the media narrative. This can be achieved by investing in media advocacy initiatives aimed at ensuring that African innovations are framed not just as humanitarian solutions but as cutting-edge technologies with global relevance. Collaborating with African-owned media outlets, think tanks, and global advocacy groups can amplify stories that reflect the true potential of African innovation beyond crisis management. Additionally, African policymakers can work with international media outlets to develop editorial guidelines that promote balanced reporting on African technological advancements.

African tech companies and innovators should adopt strategic communication practices that highlight the global applicability and scalability of their innovations. By framing their technological achievements in terms that resonate with international investors and global media audiences, African innovators can broaden the scope of coverage they receive. For instance, rather than focusing solely on M-Pesa's financial inclusion, press releases could emphasize its disruptive potential in the global banking sector. Similarly, LifeBank could position itself as a healthcare logistics company with the potential to scale internationally, reducing waste and improving efficiency in supply chains. On a policy level, African governments should invest more in Research and Development (R&D) to enhance the visibility of African innovations. By promoting domestic innovation hubs, technology parks, and partnerships with global research institutions, African nations can ensure that their technological contributions are recognized both locally and globally. Investments in space technology, such as NigeriaSat-1, should be accompanied by strategic communication campaigns that underscore the satellite's global utility in environmental monitoring and disaster management, thus positioning Africa as a key player in space technology. Finally, African governments should incentivize international collaborations that focus on technology transfer and joint research initiatives. Through such partnerships, African innovators can gain exposure to international media, attracting greater recognition and investment. Collaborations between African and Western tech companies, universities, and research centers should be promoted through government policy, grants, and tax incentives.

6. Conclusions

Overall, this study's findings suggest that the prevailing representation of African technological innovations in Western media showcase a persistent pattern of stereotyping and underestimation. Despite the significant potential of these technologies to disrupt global industries and instigate systemic change, they are frequently portrayed as mere responses to local humanitarian issues. We argue that this form of narrow framing limits the recognition and global impact of African innovations. To challenge these narratives, we propose a deliberate innovation of collaborative efforts among policymakers, innovators, and media practitioners are essential. Therefore, future research should explore the role of African-owned media in reshaping these narratives and examine how media representation influences foreign investment in African technology sectors. Such empirical insights could

be invaluable for policymakers and industry leaders seeking to amplify Africa's role in global technology development.

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Note

[1] This research adhered to ethical standards and received Institutional Review Board (IRB) approval in September 2022. All interview participants were fully informed about the nature and purpose of the study, and informed consent was obtained before each interview.

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