



#speakup

BAROMETER

KENYA

ASSESSING DIGITAL PARTICIPATION

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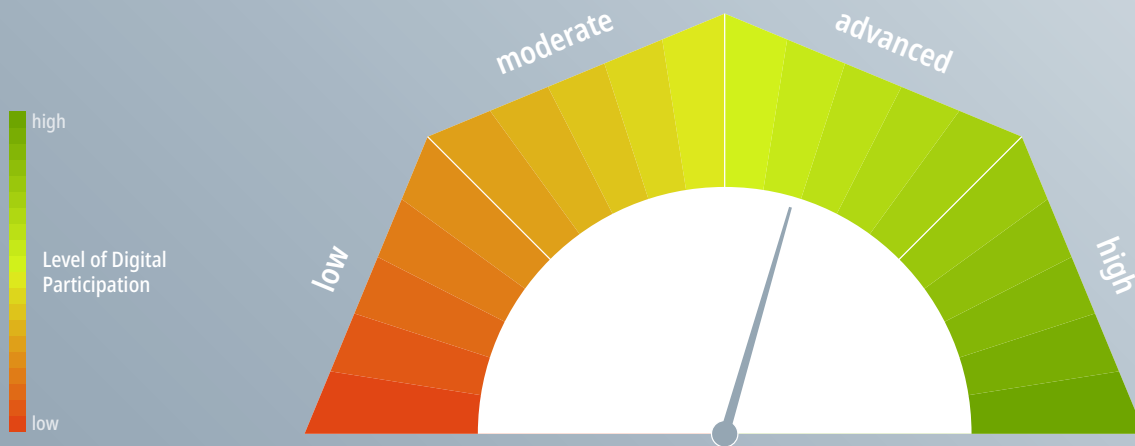
RESPONSIBLE

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Kenya



The overall results of the #speakup barometer research suggest that the level of digital participation among the Kenyan population is at an advanced level as the needle is pointing into the orange section of the barometer.

Key Findings

Digitalization has shaken up the Kenyan public sphere, galvanizing both the very best of digital technology. Kenya is one of the most wired nations in Africa. Home to inventions such as the mobile money service, M-Pesa, it has a well-established innovation scene. Social media has proven to be a powerful engagement tool for Kenyans to debate political and social issues. But it's also shown its vulnerability as a tool for spreading fake news and propaganda. Kenyan civil society needs to be vigilant in protecting existing freedoms. Whether it's punitive laws or unlawful arrests, digital rights and freedom of expression are increasingly under attack.



ACCESS

As one of the most wired nations in Africa, Kenya celebrates the Internet as a huge success story. But one only needs to look beyond the statistics to see that many Kenyans are not invited to the party.



SOCIETY

Digitalization is a catalyst for change in Kenya, amplifying voices that otherwise wouldn't be heard. But while its impact is positive, concern about technology's negative effects on the public sphere is growing.



DIGITAL RIGHTS

Kenya may be in the midst of a 'second liberation', but digital rights campaigners warn of a backlash with authorities and outside groups threatening hard-won freedoms.



INNOVATION

Kenya is home to one of the most established innovation ecosystems in Africa. Homegrown successes such as M-Pesa are driving Internet adoption throughout the country, transforming Kenya into a digital first nation.



MEDIA AND JOURNALISM

As Kenya's legacy media fights for survival a vibrant blogosphere has bolstered the media landscape. But it too has found itself just as plagued by political manipulation and threats of violence.

Kenya



Specific results for various factors influencing digital participation in Kenya. The better the results in a specific cluster, the more the color field extends to the greener, outer edge of the web. While restrictive media laws negatively impacted results in the field of digital results, positive developments on the innovation scene have resulted in a higher level of digital participation.



Access: Mobile solutions a catalyst for Internet penetration in Kenya

As one of the most wired nations in Africa, Kenya celebrates the Internet as a huge success story. But one only needs to look beyond the statistics to see that many Kenyans are not invited to the party.

Summary

- Kenya is one of the most wired nations in Africa
- Mobile money and social media apps are driving mobile adoption
- Internet infrastructure has been a government priority for the last decade
- Internet access does not always lead to economic empowerment
- New infrastructure project aims to close the digital divide

Access

low
moderate
advanced
high



The overall Level of Digital Participation for Access: **advanced**

At first sight, Kenya is an Internet access success story. The statistics underline Kenya's reputation as one of Africa's most wired nations. Internet subscription rates grew from 29.6 percent in June 2017 to 41.1 percent the following year, according to the National Bureau of Statistics. The price is coming down too. In 2015, 1GB of mobile data cost the equivalent of almost

ten percent of GNI per capita, three years later and its worth 4 percent (Alliance4Affordable Internet 2017). Affordability has helped turbo-charge the demand for Internet on the go. The rising popularity of mobile services such as social media, messaging apps, and electronic cash transfers has driven demand for mobile subscriptions, resulting in a mobile penetration rate

of 97.8 percent as of June 2018 – a 13 percent year-on-year increase (Communications Authority of Kenya 2018). Kenya also has one of the fastest Internet speeds worldwide. Internet researcher Margaret Nymabura says that the mobile money service M-Pesa was the catalyst, making urban and rural Kenyans excited about the possibilities of the Internet.

Over the last decade the government has invested in ICT and Internet infrastructure development. In 2009, Kenya was the first country in East Africa to connect to international fiber optic, with cables being installed in Mombasa at the Kenyan coast linking the country to international fiber network. Bitange Ndemo, then permanent secretary in the Ministry of Information and Communication says “at the same time, we not just connected Kenya with the international cable, but we laid the cable across the country linking every county to the cable. That differentiates Kenya from other African countries”. At first, this project was regarded with skepticism due to fears that the capacity delivered by the cables far outstripped demand for Internet connectivity. But the government also introduced policies to encourage Internet adoption, such as connecting universities to the cables as well as the introduction of tax exemptions for mobile devices in 2009, leading to a 200 percent growth in mobile devices in Kenya (GSMA 2016).

Penetration not the same as adoption

Internet statistics, however promising they look, might not reflect the reality. “If you look at the statistics, Internet penetration might be high in Kenya. But penetration is different from adoption,” says Josephine Miliza, a network engineer with the Tunapanda Institute. The lack of Internet infrastructure and electricity supply as well as affordability are issues that impact the digital divide between Kenya’s urban and rural areas. Maureen Mora of the Tunapanda Institute says that access to smartphones alone won’t empower those people who are not yet part of Kenya’s digital economy. “If you want to learn about design and programming, you can’t do it on your phone. You need access to laptops and desktop computers,” Mora says, adding that the use of desktop computers in Kenya is not all that widespread. According to the National ICT survey, computer use is at around 31 percent within Nairobi and between 5 and 10 percent in other parts of Kenya.

“People want to be connected to M-Pesa, which probably means you need to invest in a phone. And in the process, other things come in.

Margaret Nyambura, Nairobi University

But economic and social empowerment through ICTs is not only a matter of the device you use, but also your gender. Chery Yugi from Article 19 says that although her grandmother living in a rural village knows about M-Pesa and WhatsApp that

doesn’t necessarily mean she is “empowered”. “When it comes to Internet tools that aim to enhance democracy and participation, women in villages do not have a voice. They are not literate in that aspect, and this is something that affects women twice as much as men,” Yugi said.

“This year, the government started to tax money transfers, and the majority of money transfers are done by the very poor.

Bitange Ndemo, Nairobi University

Government initiatives and private companies are moving to tackle the digital divide. Kenya’s Vision2030 Medium Term plan lists ICT and Internet as one of their top priorities. A Universal Services Fund is driving the infrastructure expansion in rural areas, and Huduma centers provide Internet access and e-government services in every county. In early 2019, Telecommunications firms Safaricom and Telkom won contracts to set up base transceiver stations in remote locations still not connected to mobile networks (Daily Nation 2019). Recent changes, however, may undermine government support for Internet penetration.

Recommendations

Relevance and motivation

Almost 80 percent of Internet content is in English, even though many Kenyans are unable or are not confident to read and write in English. Maureen Mora and Josephine Miliza from Tunapanda Institute argue that empowering communities to produce their own content in their own language is one way of increasing the relevance of the Internet to them. A strong demand for Internet services will be a key driver for infrastructure development.

Digital literacy for everyone

There is a need for improved literacy regarding usage and understanding of the Internet. Margaret Nyambura adds that this needs to involve every member of society: “We are connecting the kids – but what about their parents? Are they going to encourage or discourage the kids to use the Internet?”

Public Internet access

Free public Internet access through Internet cafés or public WiFi in rural areas needs to be enhanced. “Rural folks should not be left behind. There should be a clear mapping to find the remotest of the remote. And there needs to be more places in those areas where Internet can be offered, such as in a rural hospital,” says Margaret Nyambura.



Digital Rights: A digital backlash keeps activists on alert

Kenya may be in the midst of a ‘second liberation’, but digital rights campaigners warn of a backlash with authorities and outside groups threatening hard-won freedoms.

Summary

- Kenya outperforms regional neighbors when it comes to freedom of expression, but these freedoms are in danger
- Controversial provisions of a new cybercrimes bill have been suspended after opposition by digital rights organization
- A thriving civil society has won several victories against repression, such as avoiding an Internet shutdown during the 2017 election
- The government has been strengthening its monitoring and surveillance capacities

Digital Rights

low
moderate
 advanced
 high



The overall Level of Digital Participation for Digital Rights: **moderate**

Kenya’s 2017 general election marked an important turning point for civil engagement in digital rights. Amid rumors that the Kenyan government was planning an Internet shutdown at the time of the vote, Kenyan citizens took to the web to voice their opposition. Using the hashtag #KeepItOn to thousands wrote messages calling for the government to back down. In the end, they won. The communications regulator promised to keep the Internet up and running throughout the election.

When it comes to free speech, Kenya is a regional leader. Freedom of expression is enshrined in the new constitution that came into effect in 2010. “Kenyans enjoy these open spaces because a lot of work has been done in reforming the constitution.

“In Kenya we have a whole ecosystem behind the judiciary that is knowledgeable about digital rights issues and that also supports journalists.

Ephraim Percy Kenyanito, Article 19

We often refer to it as a ‘second liberation’ because it offers a lot of rights for the media,” says Grace Mutung’u from the digital rights organization KICTANET. However, constant vigilance is necessary to protect such civil liberties. Some controversial laws have been passed, bloggers have been arrested and the government has upgraded its surveillance capacities. Despite the onslaught, Kenya’s civil society has shown little sign of giving up the fight.

In May 2018, Kenya’s Computer and Cybercrimes Bill was signed into law (Article 19 2018). Some of the law’s overly broad provisions have angered campaigners. Such as plans to introduce prison sentences of up to 10 years for “publishing information that is false in print, broadcast, data or over a computer system, that is calculated or results in panic, chaos, or violence among citizens of the Republic, or which is likely to discredit the reputation or others”. Ephraim Percy Kenyanito from Article 19 says such sweeping punishments could be harmful to freedom of expression in Kenya. BAKE, the Bloggers Association of Kenya, filed a petition challenging the constitutionality of several provisions of the law. As a result, 26 sections of the Act have been temporarily suspended, pending a final decision by the high court (Roedl, 2018).

Defending fundamental rights

In addition to a strong civil society, digital activism is also thriving in Kenya. In 2018, several organizations successfully challenged legal actions taken against 52 bloggers. Some of whom had been arrested on the grounds of the Kenyan Information and Communication Act. “Most of them were whistleblowers or had used information that was unfavorable to those in power,” says Kenyanito. But Kenya’s independent judiciary made several rulings defending fundamental rights. There are, however, still holdovers from the time preceding the country’s new constitution. “We have a lot of old laws from the old systems that are still used today and that are regularly used to curtail open spaces,” says Mutung’u. According to her, the participatory nature of the constitution is civil society’s strongest weapon. She says that “as much as the leadership has changed, the structures for engaging the public have remained”. The 2010

constitution mainstreamed the idea of public participation in government processes and defined citizens as the defenders of the constitution.

Data protection and surveillance

Kenya doesn't have a data protection law, leaving users to guard their privacy alone. The extent of the problem became apart when it was revealed that the data analytics company, Cambridge Analytica, was mining the personal data of millions of Kenyans (Channel 4, 2018). Then using it to micro-target voters in the national elections. "Even as we digitalize, we should remember it is about humans and that we want a people-centered digitalization," says Mutung'u. KICTANET is among a handful of privacy campaigning groups that helped to create a Draft Data Protection Bill, released in August 2018 (Privacy International, 2018).

“Even as we digitalize, we should remember it is about humans and that we want a people-centered digitalization.

Grace Mutung'u, KICTANET

Civil society groups and the government have also struggled over concerns about the growing use of surveillance technology. Reports by Citizen Lab and Privacy International revealed evidence of the use of surveillance software capable of hacking passwords, private messages, and tracking movements via mobile phones. In some cases, it's alleged that mobile operators shared the information with the authorities. "These surveillance technologies obviously have an effect on freedom of expression. If you know that every move is being followed, it creates a chilling effect. How much you can question the government? How much you can question leadership in general? And how much you participate in political discussion?" says Mutung'u.

Recommendations

Keep up pressure against repressive laws

Ephraim Percy Kenyanito from Article 19 is convinced that Kenyans need to keep on fighting such laws by filing petitions and going to court, "especially when the laws are not in the spirit of the constitution".

Be proactive

Civil society in Kenya is strong, but in many cases campaigners were reacting to actions by the authorities. Civil society should strive to be more proactive.

Find strong allies

The digital rights community needs to partner with traditional civil organizations and convince them to expand their programs to include digital rights issues.

Digital rights literacy

There is a need for civil society to raise awareness of digital rights, especially among young people. "Having digital security and digital rights be part of the school curriculum would be a major step," said Ephraim Percy Kenyanito.

Find homegrown solutions

Kenyans have a tendency to adopt things that were developed in other countries. "There is a need for homegrown solutions, especially when it comes to mobile technology, as this is what matters most in Kenya," said Grace Bomu.



Media and Journalism: Old traumas return: Political interference and violence in Kenya’s digital era

As Kenya’s legacy media fights for survival a vibrant blogosphere has bolstered the media landscape. But it too has found itself just as plagued by political manipulation and threats of violence.

Summary

- Kenya has a vibrant blogging community that is gaining the respect of journalists
- Yet the 2017 general election saw widespread manipulation with bloggers paid to spread government propaganda
- A newsrooms skills gap is resulting in shallow coverage
- Legacy media outlets are driving innovation
- Growing fear of violent attack, cyber harassment, and arrest threatens journalistic freedom

Media and Journalism

low
moderate
 advanced
 high



The overall Level of Digital Participation for Media and Journalism: **moderate**

The run up to the 2017 general election in Kenya was a busy time for journalism. Millions of Kenyans were hungry for political news and journalists were ready to feed it to them. More than 90 percent of the population consumed election-related news in the months preceding the vote (Geo Poll 2018). And as is typical for tech-savvy Kenyans, most news consumption happens online, via a mobile phone. But at the time of the election, many Kenyans encountered a media environment manipulated by rival political camps intent on spreading disinformation and propaganda. The roots go back to a national election ten years earlier.

In the aftermath of the bloody violence that followed the 2007 election, traditional media were accused of political bias and ultimately of stoking bitter tribal and ethnic divisions. Out of the deadly carnage emerged the Kenyan blogosphere with the goal to provide alternative voices and narratives. Today, Kenya’s online media landscape is vibrant, with social media providing influential platforms for media organizations, journalists, and bloggers to share information. According to a report by the Bloggers Association of Kenya (BAKE), bloggers create most of the local content. “Bloggers gained their credibility for being fierce and for creating content in specific areas,” says Shitemi Khamadi of BAKE. Journalists have increasingly come to appreciate the work that bloggers do. “They provide the bits of information that journalists are often unable to publish because they don’t want to offend the authorities or their advertisers,” Khamadi said.

Manipulation machinery during 2017 election

However, during the 2017 election period, different political camps hired bloggers to shape public opinion and manipu-

late the online information landscape (Standard 2017). One of those groups was called the “36 bloggers”, hired by the current administration to inject alternative narratives into the bloodstream of WhatsApp, Facebook and Twitter. The manipulation machinery, a whole ecosystem of bloggers and commentators spreading false content and memes, cast the Kenyan blogosphere in a negative light. “This of course affected the credibility that bloggers have,” explained Khamadi. However, he adds, most of the hired bloggers weren’t running a blog at the time; they were just outspoken online actors on social media. According to Gado, social media has enabled manipulation that is growing ever more sophisticated and harder to detect. “The creators of fake news used to be media organizations and the government. Now, the people are sort of bought into it.”

“Digitalization has really messed with the playing field – in good ways and in bad ways.

Godfrey Mwampembwa, or “Gado,” CEO of bunimedia

Newsrooms in the digital age

At the same time, journalism in Kenya is only starting to get to grips with the challenges of the digital age. The Aga Khan University in Nairobi recently launched a master’s program in Digital Journalism. “It comes at a time when Kenya is experiencing a wave of converging newsrooms to the digital age,” says Rhonda Breit, associate dean at the university’s Graduate School of Media and Communications. In line with global trends, newspapers sales have decreased in recent years, hurting the revenue streams of traditional media. The knock-on effect has been

noticeable. “From a media house perspective, there has been a big juniorization of staff that came as a result of downsizing the news environment. And then there is a skills gap coming from that juniorization,” Breit said. Many journalists lack the necessary skills to produce quality journalism across all platforms including digital, video, and radio. The master’s program aims to fill in the gaps to achieve more digital reporting that goes beyond day-to-day, event-based journalism and motivate students to come up with innovations that will shape the future of Kenyan media.

“As a result, Kenya is often experiencing very shallow news coverage. People get a story, but don’t go deeper. We just scratch the surface on issues.

Rhonda Breit, Aga Khan University

New media startups scrambling for revenue sources

“We are very strong on Instagram, Facebook, Twitter and YouTube. We have an incredible mobile penetration rate of 97 percent and most of our viewers are younger than 30 years old,” says Leonie von Elverfeld from Pulse Live. It’s one of several new media startups that are investing all their hopes in social media. Their Nairobi newsroom has the unmistakable sense of urgency that comes with youth, and a constant flow of people coming and going. Short videos and, increasingly, live videos of people on the street offering opinions are their most popular formats, says von Elverfeld. He says that many legacy media outlets struggle to produce content that strikes the right tone for social media. Even Pulse Live barely manages to produce content for their website. It too is facing headwinds when it comes to Kenya’s digital advertising market, which is still heavily centered on billboards and radio. “When we go to potential clients, we need to explain a lot. Almost nobody knows about native advertising and SEO [search engine optimization]. We are the innovators when it comes to digital advertising in Kenya,” said Martin Wachira, managing editor of Pulse Live.

Despite the economic uncertainty, legacy media such as the Nation, Standard, and also increasingly the Kenyan Broadcasting Corporation are investing heavily in digital. For example, the Daily Nation newspaper was the first publisher in East Africa to develop a chatbot. Known as “Nation Kiki”, it guides readers to content and can interact with audiences. And through the “Newsplex” program, it also offers data-driven journalism that produces in-depth and engaging stories for online audiences. A “Before you vote” series (Poynter 2017) run in the build up to the election in 2017 fact-checked claims by politicians (Daily Nation 2017).

Press freedom increasingly under threat

Kenya as a media hub for East Africa is thriving. Legacy media are expanding digitally and new media startups are on the rise.

And yet the Media Council of Kenya has warned that a recent crackdown on journalists and media workers around the country threatens press freedom.

On top of the threats and acts of violence, some bloggers and social media users have been arrested on charges of publishing false information under the 2018 Computer and Cybercrimes Bill (Freedom House 2018). Polarization is another problem. Media outlets are increasingly under the ownership of politicians, says Rhonda Breit from Nairobi’s Aga Khan University. “So even in the newsroom, the notion of objectivity is difficult. People still tend to report more positively about their political preference. And that preference tends to be very strongly aligned to ethnic lines.”

Recommendations

Emphasis on in-depth, quality reporting

Kenyan media organizations are still suffering from the damage done to their image during the 2007 and 2017 election period. Media should begin to repair the damage by investing in in-depth reporting. “A lot of people say that reporting is dead. We need more analysis and investigative journalism, more focus on features, journalism that informs,” says cartoonist Gado.

Diversity in news organizations

Many Kenyan news organizations are still heavily dominated by men. “Kenya has strong gender problems. There is a real glass ceiling for women in the media here. And there is a huge amount of harassment resulting in an unhealthy culture of intimidation,” said Aga Khan University’s Rhonda Breit.

Media viability

Investing in research around sustainable and viable business models that ensure media’s independence from politics will be a key step for navigating media through the digital change period.

Creating content

Shitemi Khamadi is convinced that the next step for blogging will be to train people in the rural areas to produce content in their own tongue: “The next frontier in terms of blogging will be bringing people outside of the cities to create content – not in English, but in their native languages.”



Society: The good, the bad and the ugly of Kenya's first digital decade

Digitalization is a catalyst for change, amplifying voices that otherwise wouldn't be heard. But while its impact is positive, concern about technology's negative effects on the public sphere is growing.

Summary

- Social media platforms are emerging as a key place for political discussion
- Through the use of popular hashtags like 'Kenya on Twitter' (#KOT) – online voices influence broader society
- The 2017 election period saw an upswing in online manipulation and fake news
- Traditional structures still dictate online social norms

Society

low
moderate
advanced
high



The overall Level of Digital Participation for Society: **advanced**

"Do you know #KOT - Kenya on Twitter?" asks Schaeffer Okore of the Ukweli Party. Kenya on Twitter (@KOT) is a popular Twitter handle and hashtag (#KOT), which is used by Kenyans to comment, argue, and poke fun at current political and societal issues. The mainstream media regularly picks up the topics raised. Many Kenyans feel the hashtag offers a new perspective on their national identity by representing the issues that matter to people, while reflecting Kenyan wit and humor. "It is the unofficial opposition of the country," laughs Okore. "KOT have a lot of power and they're able to shift the conversation." It combines Kenyans' excitement about the Internet with their love of discussing politics – a combination that's a good starting point for the country's dynamic online culture.

Jessica Musila of the government tracking website, Mzalendo, believes that digital technology has notably raised the engagement of Kenyan citizenry. "We get to defend the integrity of our country. We can make memes about government officials and even call our president names on Twitter and Facebook. But we also have very engaged conversations." That's because government representatives and officials are responsive either via their own social media accounts or the accounts of influential stakeholders who play a key role in public affairs.

However, Rachel Nakitare of Kenya's state-run broadcaster, KBC, thinks these conversations mostly represent well-educated, urban elites who are early adopters of information technology. "The Internet gave Kenyans a voice and an opportunity to raise concerns in real time. However, this is limited to the elites, and to those who know how to navigate in those spaces," she said.

Politics, elections and digital's dark side

But sometimes, knowledge of how to navigate the digital world can be exploited, for instance during politically sensitive peri-

ods. It was Kenya's post-election violence in 2008 that created the foundation for today's vibrant digital sphere, with many bloggers challenging the government narrative broadcast on traditional media. Ten years later in 2017, there was hope that technology could help ensure a fair and peaceful election thanks to the launch of the e-government system "e-citizen" and development of IT infrastructure for voter identification and election result transmission. But in the end, the voting system proved to be hugely flawed. More cynically, political camps exploited digital technology and social media to manipulate the election. According to Kenya's ICT Action Network KICTANET, a whole ecosystem was installed, from data mining and meme factories to bloggers for hire, paid to spread messages in favor of a re-

“Twitter and Facebook are giving us a space that was not traditionally accessible.

Jessica Musila, Mzalendo

spective political party. A study by the international consultancy Portland Communications revealed that bots accounted for a quarter of all influential accounts... According to Kenyan writer and political analyst Nanjala Nyabola, "the challenges posed by new media replicate those raised by local language radio during the 2007 election". She says, for example, that while WhatsApp is becoming more popular as a political mobilization tool, it is also becoming the preferred place to spread hate speech.

Patriarchy perpetuated online

Despite embracing technology, Kenyan society is still structured around traditional values and morals such as patriarchy – the effects of which are felt both online and offline. Many Kenyan women who have spoken out online have reportedly been

victims of cyber harassment ranging from abusive comments to identity theft and even death threats (DW 2017). Chery Yugi of Article 19, an organization that promotes freedom of expression, says that such threats can affect women in different ways. “There are those women who are just propelled higher, and those who completely withdraw from those spaces,” she said. For Schaeffer Okore of the Ukweli party, the latter outcome is unacceptable. “The digital space is a representation of the offline space we have in Kenya. A society that doesn’t represent women offline will not do it online,” she said.

When looking at the scale of abusive behavior online, Nyabola says it would be easy to think that Kenya’s digital story is overwhelmingly negative – but that would be too simplistic. “Underneath all of this tension and upheaval is agency. Kenyans are taking on technology that was built for the West to tell their own story and chart their own political destiny, for better or worse,” Nyabola says.

Recommendations

Improve digital skills

Schools and universities need to focus on teaching applicable digital skills that are relevant to the job market. Maureen Mora of the Tunapanda Institute stresses that “there should be more talk between the educational sector and industries. We focus too much on our papers and CVs”.

Creating home-grown solutions

Digital colonialism is a serious issue in Kenya. Many technologies applied here were developed in the West; by, for, and to Western societal norms. Kenyans need to move away from simply adapting those technologies to generating their own home-grown solutions.

Continue social media engagement:

“Digital platforms are the spaces where the extent of Kenyan character and creativity are on full display. Significantly, online spaces have amplified those who would otherwise be unheard,” says political analyst Nanjala Nyabola. She wants more Kenyans to embrace those spaces to tell their own stories.



Innovation: Finding digital solutions to local problems, Kenya's innovation scene is no one-hit wonder

Kenya is home to one of the most established innovation ecosystems in Africa. Homegrown successes such as M-Pesa are driving Internet adoption throughout the country, transforming Kenya into a digital first nation.

Summary

- Kenya has one of the oldest and most thriving innovation ecosystems in Africa
- Homegrown solutions such as M-Pesa, Ushahidi and the iHub have gained global recognition
- New investments projects are helping to create more sustainable businesses in Kenya
- Kenya's education system needs to embrace critical and innovative thinking to meet the demands of the digital society

Innovation

low
moderate
advanced
high



The overall Level of Digital Participation for Innovation: **advanced**

The story of digital innovation in Kenya is the story of M-Pesa, Ushahidi and the iHub. It's these local inventions that have triggered digital participation and given Kenya a reputation for developing digital solutions. The success of crisis mapping tool Ushahidi, mobile money service M-Pesa, and the tech incubator iHub have lead to Kenya being dubbed the "Silicon Savannah" of Africa, home to one of the oldest and most flourishing startup scenes on the continent (Ventureburn 2018).

“The Kenyan innovations that made it to the international stage all had a local problem at their core.

Bitange Ndemo, Nairobi University

Thanks to its high Internet penetration rate, fast Internet speed, and use of English as its national language, Kenya is an attractive environment for digital entrepreneurs and investors. Supportive tech policies are helping in the development of infrastructure, creation of local content, and public-private partnerships. It is in this climate that successful web applications were able to grow. Like the crisis mapping tool "Ushahidi", born during the post-election violence of 2008, and now being used all over the world to assist in humanitarian responses or election monitoring.

Kenya's innovation scene is no one-hit wonder. Today, Nairobi is home to more than 30 tech hubs and incubators, giving space to developers, designers, researchers and entrepreneurs to work on new technological solutions. Around the world, Kenya

is gaining recognition as the East African tech node. Nairobi will host the Next Einstein Forum in 2020, the largest science event in Africa. Venture capital funding for startups in Kenya jumped from \$92.7 million in 2016 to \$147 million in 2017 – the second highest level on the continent after South Africa, according to Partech Ventures (Quartz 2018). Nairobi's flagship innovation center, iHub, announced plans in 2016 to launch the next phase of the organization, with a new emphasis on sustainable businesses and the goal of becoming 100 percent self-funded.

Local innovations first

Going forward, it's essential that Kenyan entrepreneurs be mindful of the roots of past successful innovations – namely, finding solutions for local problems. Unlike innovations in the West, collectivism for example, is frequently at the core of successful Kenyan creations such as M-Pesa or Ushahidi. Catherine Gicheru from Code for Africa adds that successful ideas are those that "trigger participation, that ease people's daily lives, and that matter on the level of our communities".

“If there is something that is holding Kenya back from innovation, it is the education system. There is not an emphasis on creative thinking.

Rhonda Breit, Aga Khan University

But one challenge in bringing more local innovations to the international stage is the concentration of Kenya's tech scene in

Nairobi. The digital divide between the countryside and rural areas is a major barrier in promoting digital entrepreneurship across the country. Due to increased affordability, Internet penetration in rural areas is on the rise. And with that, more and more innovation spaces are opening up outside Nairobi (Quartz 2017).

Another common criticism is the lack of diversity in the Kenyan tech scene – an issue that made headlines in the summer of 2018 when a tweet about the dominance of white people in Kenyan tech companies was shared widely.



Twitter user TMS Ruge argues that although those people do not represent the whole Kenyan online space, they receive the biggest share of investment capital. “Innovation spaces are mostly male, there are young people in these spaces, but they don’t have a voice. There are very few women. At the top of the hierarchy, there are often white men,” says Hildah Nyakwaka, who runs the open innovation student initiative Jamlab.

Education needs reform

Jimmy Gitonga, senior consultant with the multimedia design company Afroshok Media, says an entrepreneur needs a certain mindset to succeed. “An entrepreneur needs critical thinking,

persistence, adaptability, creativity and initiative,” he says (Ndemo and Weiss 2018). But it’s a skillset that is often forgotten in the Kenyan education system. Some universities have already started applying new curricula and methods to learning, but the majority of public institutions still pursue a highly structured approach to learning. For Breit, “the reality is that Kenya is innovative despite its education system”.

Recommendations

Support innovations made in Kenya

“We can learn from other innovative spaces around the world, copy what is necessary, build what infrastructure we need, and innovate for Africa first. Only then can uniquely African knowledge and financial investment grow in an environment that is, in itself, unique.” says Jimmy Gitonga.

Reform the education system

Kenya’s education system should stimulate critical thinking. In order to create digital entrepreneurs, Kenya needs to modernize its education system. Bitange Ndemo: “One solution is Artificial Intelligence (AI). We need a system that actually looks at individual needs. With AI, specific content can be delivered at the appropriate speed.”

Innovation in rural areas

With rural areas languishing behind in the digital economy, the Kenyan government, as well as private companies, need to bolster their efforts to support rural development.

Innovations need to include government, media, and civil society to trigger participation

Catherine Gicheru: “You need civil society organizations to bring your innovation to local communities, media to scale up the efforts, and the government authorities to create responsibility. Some innovations have failed because citizens demanded change via digital platforms and then there was no one responding to it.”

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