

# Gaming in *sub-Saharan Africa*

Alison Fiorito



## INTRODUCTION

The world of digital media is quickly taking hold in Africa, and the demographics of many countries in sub-Saharan Africa make it a place ripe for the influence of gaming. Mobile media is one of the most prevalent tools for digital communication on the continent, and the new fiber-optic cable system approaching the coast could open even more options for digital participation. Early on in my research, I came across a young writer named Mark Kaigwa, who in conjunction with Warner Bros., created a game designed to educate young Kenyans on HIV, AIDS, and safe sex. This early finding sparked my interest in the use, creation, and prevalence of digital games in sub-Saharan Africa.

For the purpose of this paper, the focus will be on a small sample of countries of the African continent, specifically Kenya, South Africa, and Nigeria. These three countries were selected for examination because of their robust commitment to information and communication technology (ICT), the substantial skew toward a younger demographic, and their disparate locations on the continent and subsequent diversity of populations and cultures. In its February 2010 article in the ICT Statistics Newslog, ITU said, "Kenya is both one of Africa's largest mid-scale markets and is a bellwether in terms of technology adoption. Crudely, what happens in Kenya will start to happen elsewhere."<sup>1</sup> And indeed, Kenya's statistical numbers were on the high end of any generalized "sub-Saharan" statistics.

South Africa warrants considerable attention because, on the whole, it is the clear leader in ICT adoption in sub-Saharan Africa. As SouthAfrica.info reports, South Africa is "the leader of information and communication technology (ICT) development in Africa."<sup>2</sup> Though South Africa does not fully qualify as an emerging market because of industrialization in some areas, parts of South Africa do have the profile of an emerging market. The country provides leadership and innovation in ITC for the continent. The more content created by Africans for Africans, the stronger the market for African entrepreneurs and game designers will be.

Aaron Ukodie, chief executive of *eWorld Magazine*, said of the 50-year independence celebration in Nigeria on September 30, 2010, "It is therefore important that as Nigeria celebrates 50 years of independence from colonial rule, the ICT sector, which has been widely recognised as the most effective catalyst in national development, roll out drums in celebration and plan ahead."<sup>3</sup> Clearly, some in Nigeria point to ITC as an integral part of its development as an independent nation. Therefore, including Nigeria in this snapshot of current proliferation of games in sub-Saharan Africa reflects well on the reality and significance of their development.

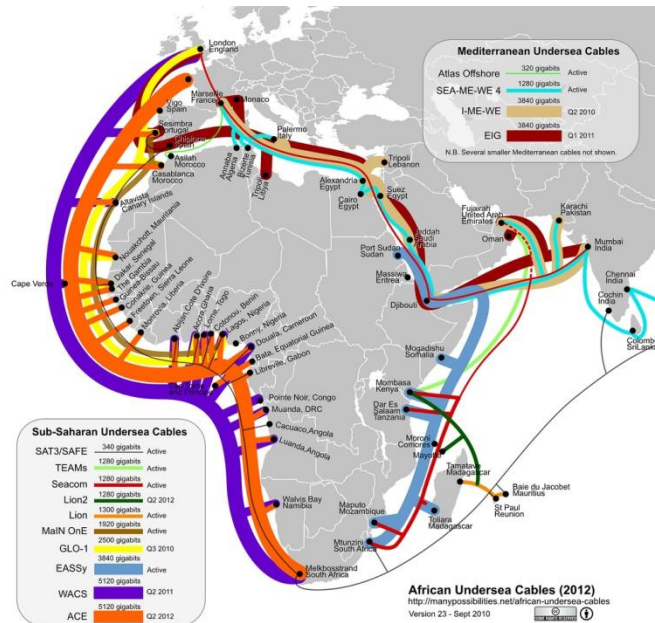
The median age of the population in Kenya is 18.8 years; in Nigeria, 19.1 years; and in South Africa, 24.7 years.<sup>4</sup> So again, all three nations have a young population, which may be more attracted to games than other demographics.

## THE ROLE OF GAMING

So why are games important to information and communication technology? In the book The Rise of Games and High Performance Computing for Modeling and Simulation, the authors state, "Ever-increasing computing power over the past 60 years has directly assisted the evolution of modeling, simulation, and games (MS&G), leading to new capabilities for developing models and simulating natural and engineered phenomena with greater realism and accuracy. In the meantime, the desire to model and simulate ever more complex phenomena has driven the demand for greater computing power, creating a feedback loop that has existed since the first computer."<sup>5</sup>

Gaming and other forms of entertainment have done more to promote technological advances in the Western world than most other industries. The possibility of entertainment on a digital device gives users flexibility, privacy, and anonymity. Games designed specifically for the sub-Saharan market could increase demand and growth in the information and communication technology for development (ICT4D) arena just as technology expanded, grew, and matured in the developed world. In addition, I believe that part of the human condition is to seek pleasure and enjoyment, and games can be a part of that endeavor. Finally, games and entertainment also drive the technology that ultimately can help support growing economies.

The ICT landscape of any given population will drive the gaming platform. As such we must consider which technologies Kenyans, Nigerians, and South Africans favored. The saturation of the South African market with mobile phones is at 92%, with Kenya and Nigeria both at 42%. Internet users in South Africa are at approximately 11% and at 8% for Kenya and 7% for Nigeria. Mobile internet adoption stands currently at the rate of 1.98 million subscribers in Kenya (or 5% of the population) and at 11% for South Africa (reliable statistics for Nigeria were not accessible at the time of this writing).<sup>6</sup> However, Safaricom, the largest telecommunications company in Kenya, has only offered mobile internet for less than a year, so mobile internet is not currently widely available in sub-Saharan Africa and the number of subscribers is expected to grow significantly as the service becomes more widespread. Some undersea Internet cables have already reached both coasts of Africa, and more are scheduled to arrive in the next few years. This connectivity could provide broadband connection to millions of users.<sup>7</sup>



As these statistics demonstrate, the ICT of Sub-Saharan Africa lies mainly in the mobile arena. However, there is great potential for growth in the Internet sector.

Wayan Vota, senior director of the Inveneo Certified ICT Partner Program, works exclusively in the ICT4D arena. The Inveneo Certified ICT Partner Program is a nongovernmental organization (NGO) that provides entrepreneurs in emerging markets with the technology to change how they conduct business and their ability to participate in the global market.<sup>8</sup> In a phone conversation I conducted with Mr. Vota, he added that the governments of many emerging markets are jumping on board to help facilitate the proliferation of internet technologies in their respective countries. He offered Kenya as an example where the government has added four fiber-optic cables in order to boost local economies and provide a boom in local content and activity. He also noted that, like would be seen anywhere, there are early adopters of the new technology, “waiters” (those who want to see if this is just a passing fad), and those who will never use it. Also, the adopters of new technologies cross the strata of the population. Finally, like anywhere else, the new technology will help drive trends that already exist in the society - hopefully the positive to benign trends, not the harmful ones.

In 2008, an online game titled “Pamoja Mtaani,” which is Swahili for “Together in the Hood,” was created in a partnership between the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) and Warner Bros. Studios. Virtual Heroes, an American game development company, manufactured the game, targeted at 15-to19-year-olds. In the 2009 *AfricanLoft* article “Pamoja Mtaani Video Game Helps Kenyan Youth Avoid AIDS,” Brad Wilson of Virtual Heroes explains that, during the course of

the game, each of the five characters initially practices some type of behavior that puts them at risk of contracting HIV or other diseases.<sup>9</sup>

According to the Warner Bros. HIV Free Generation website, "In the Pamoja Mtaani game, an everyday matatu ride turns catastrophic as five strangers are brought together through an unforeseen hijacking, losing what is most precious to each of them. Through their efforts to seek justice upon their perpetrator and recover their stolen items, they must help an injured woman and find guidance from a mystical character, Mama Africa, to help them through their quest. As they work their way through various neighborhoods, they uncover and experience barriers and facilitators to behavior change. Through a variety of missions and mini-games, they learn the truth behind their actions and the true meaning of what has brought them together."<sup>10</sup> The video game simulates real-life settings in Kenya's capital, Nairobi, from downtown to the city's teeming slums.

In the *AfricanLoft* article, Virtual Heroes' Wilson explains how they were able to simulate real-life settings in Nairobi: "Our first trip here was in the middle of March (2008]. We took roughly about 5,000 pictures of everything. When we came back to the States, the arts staff pretty much deconstructed all that - here is this, how can we fit this in the level size that we want, what is going to be realistic?"<sup>11</sup>

Wilson says his team consulted widely with Kenyan youth during several visits to the East African country. They did this to find out what is important to young people in Kenya, what they wanted out of a game, ideas they had for the video, and other information. Additionally, they partnered with a Kenyan writer, Mark Kaigwa, who co-wrote the game.

The game is a free-to-play, multiplayer game currently available to play at three locations in Nairobi, and according to Kaigwa in an interview with Maisha Film Lab, "About a thousand or so kids play the game each week."<sup>12</sup>

Another innovative game designed for African users was the online game EVOKE. The World Bank Institute with a budget of \$500,000 funded the game. It was a multiplayer online game created with game director Jane McGonigal. EVOKE launched on March 3, 2010, and ran for 10 weeks. It was free to play; open to anyone, anywhere; and designed for players ages 13 and up.

On her blog site, Jane McGonigal states, "The goal of the game is to help empower young people all over the world, and especially young people in Africa, to come up with creative solutions to our most pressing problems: hunger, poverty, disease, war and oppression, water access, education, climate change."<sup>13</sup>

The game sprang from concerns among African universities that public investment in universities is not producing the kind of innovation that industry wants. As Bob Hawkins, senior education specialist with the World Bank Institute, said in a CNN Tech article, "Instead, innovation is being imported from outside the continent and outside South Africa." The article goes on to say that Hawkins "hopes Urgent EVOKE will empower people in Africa to change their own futures. This game will act as a kind of hyper-engaged online social network," he said, "setting people in the developing world up with contacts in Europe, the United States, and elsewhere who may offer insight or even cash."<sup>14</sup>

After the game's conclusion, the developers held a three-day Post-Vita meeting to analyze what went well and what needed improvement. The game is designed for multiple iterations, so the postmortem is designed to inform next year's EVOKE. Some of the findings were:

1. **Pyramid of participation:** We received 10 times more EVOKATIONS than expected, and overall, the pyramid of participation numbers shattered estimates.

	Target	%	Actual	%	Diff.
Visitors	87,500		177,673		103%
Registered	6,875	8%	19,324	11%	181%
Active	700	10%	4,693	24%	570%
Certified	70	10%	223	5%	219%
EVOKATION	7	10%	74	33%	957%

2. **We were not entirely successful in getting EVOKE fully integrated into the classes that were taught by the University professors who were our original target audience.** (However, after-school clubs or weekend clubs seemed to be a very strong fit.) We also did not effectively define the professors' role within EVOKE as clearly as we could have. Part of the problem is that mentor play in general was not well defined and would need to be further refined for next season. More follow-up is required to improve our integration.

*Solution: Carve out defined activities and roles for professors/teachers. Further define what it means to be a mentor.*

3. **While marketing and outreach in South Africa was successful, we would like to reach more participants in Africa outside of SA.** Also, we did not reach enough female participants; it was roughly a 75%/25% split. Our graphic novel aesthetic may have been inadvertently skewed to aesthetics that resonate with men.
4. **We didn't design meaningful SMS gameplay.** We thought about SMS as a push medium only, and didn't take good advantage of that either. SMS text is a unique medium requiring a radically different game design approach, and we did not truly push ourselves to go down this path.

*Solution: Research SMS text-based games and derive some key design principles for new seasons of EVOKE.<sup>15</sup>*

This last observation is the one that perhaps disappoints the most, despite all that is noteworthy from the EVOKE project. Given that the majority of ICT in South Africa and sub-Saharan Africa is based on mobile telephony, those participants from developed nations designed most of the games for Africans for *online* use. As a result, there is a decided lack of robust games for mobile devices in sub-Saharan Africa. Araba Sey,<sup>16</sup> Research Faculty at the University of Washington's iSchool, wrote in an email:

I wouldn't say there's no significant market for digital games though (there may well be); rather that there's no significant industry. On the production side, local game developers are in short supply as is the infrastructure and equipment; on the consumer side, the financial resources to acquire or access foreign games is limited. Although I've been told a lot of young people spend their scarce funds playing computer games at internet cafés, I haven't seen any hard evidence to support that this is happening on a large scale. As far as mobile gaming in Africa overall is concerned, I see it more in the realm of potential at the moment. You're most likely to find some activity worth paying attention to in South Africa, and perhaps a few Central/East African countries. Even then, probably not all that well-developed compared to other parts of the world. The platform is certainly there now with the high levels of mobile phone ownership on the continent. I think that's the main story here – the potential.

## CHALLENGES AND SOLUTIONS

What, then, are the challenges to the game industry in sub-Saharan Africa? We can identify six main hindrances. The first two have to do with money, the next two with culture, and the last two with innovation.

1. Those of us in the developed world have pretty easy access to banking and credit cards. In Africa, many are "unbanked," or accessing their money is difficult.
2. The daily earnings of a person in sub-Saharan Africa are much lower than a counterpart in the U.S., for instance. A worker in Kenya might only make \$1 a day. When compared to the \$.99 cost of an application from Apple, the discrepancy in income becomes apparent.
3. Language is a great barrier to bringing games to the African continent. There are over 2,000 languages and dialects in Africa.<sup>17</sup>
4. Cultural context is also an important consideration in creating a game. Though Warner Bros. did a very thorough job in creating Pamoja Mtaani specifically for the Kenyan market, other game story lines might not make sense to a consumer in Kenya because they lack cultural context.
5. According to Wayan Vota, African schools typically teach by memorization and regurgitation, so students are not encouraged to participate in innovative thinking. Additionally, they are generally taught to get a secure job at a big company, so for many, striking out to become a game designer or writer isn't a reality.<sup>18</sup>
6. Mr. Vota goes on to add that most of ICT in sub-Saharan Africa is based on necessity, so fun and games are not always part of the action.

I would like to propose that there are possible solutions for each of these challenges.

**Banking:** In recent years, with the advent of M-PESA, mobile banking is changing how Kenyans do business and how they are able to spend money digitally.<sup>19</sup> I propose that as banking becomes easier for those in emerging markets and the unbanked gain access to easy digital spending, more people will choose to spend their discretionary income on entertainment.

**Income:** Some might argue that if people are only living on a dollar a day, they might not have the discretionary income to spare. However, even on such a limited income, people still choose to have a beer with their friends. People can still choose to have a fun even on a limited budget.

Micropayments could take a small fraction of that dollar a day and, over time and with a growing population, add up to a significant amount of money.

**Language:** Though localization might not be reasonable for 2,000 languages, developing games that are not language dependent or localizing in a few primary languages might be feasible.

**Cultural context:** The best way to include relevant cultural context is to engage the local people. Encourage them to write and create their own games based on games and stories that already exist in their culture.

**Innovation in education:** Games are natural teaching tools. The game and the educational system can symbiotically coexist. The World Bank even made the decision to invest \$500,000 in a game to encourage innovation and education. That is quite an endorsement for the partnership between games and learning.

**Innovation in ICT:** As I stated above, the advent of games and entertainment pushed technological limits in the developed world. It can do the same in emerging markets. In addition, there are some ways that games could be made more accessible on mobile devices. In Nigeria, many of the phones come preloaded with games.<sup>20</sup> The games are very simple and easy to master, so consumers come to buy the more challenging versions of the games. Prepaid minutes that are currently used for voice or SMS could instead be used to buy games. This would streamline the game purchase and become another solution to the banking roadblock mentioned earlier.

Another potentially rich market could be with multinationals moving onto the continent. Coca-Cola has been in the African market for many years, but Miller Brewing's acquisition by a South African company gives an opportunity for brand recognition in a new market.<sup>21</sup> Perhaps the new SABMiller could create a free mobile game to help solidify brand recognition. Instead of "Angry Birds," people could be playing "Angry Beers" on their mobile devices. With millions of mobile users on the continent, there is great potential for multinational corporations to move into the growing entertainment market and create brand recognition for their own products. While the current market models in Kenya use premium SMS and a quiz-based model, online and mobile application gaming has yet to go mainstream.<sup>22</sup> Here is a great opportunity to do just that.

While ICT expands and grows on the African continent, games are sure to follow. Who better to understand what games could be successful than the African people themselves? Sub-Saharan Africa has lots of the pieces in place to create a robust, lively digital gaming community. Media practitioners, entrepreneurs and researchers should pay close attention to how the puzzle unfolds and comes together as these emerging markets blossom.

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<sup>1</sup> "National survey shows Kenyan Internet market heading towards "critical mass," ICT Statistics Newslog, accessed May 19, 2011, <http://www.itu.int/ITU-D/ict/newslog/National+Survey+Shows+Kenyan+Internet+Market+Heading+Towards+Critical+Mass.aspx>.

<sup>2</sup> "ICT and electronics in South Africa," SouthAfrica.info, accessed on May 19, 2011, <http://www.southafrica.info/business/economy/sectors/icte-overview.htm>.

<sup>3</sup> "New ICT Industry Report," IT news Africa, accessed on May 19, 2011, <http://www.itnewsafrica.com/?p=8628>.

<sup>4</sup> "The World Factbook," Central Intelligence Agency, accessed on May 21, 2011, <https://www.cia.gov/library/publications/the-world-factbook/>.

<sup>5</sup> Committee on Modeling, Simulation, and Games; Standing Committee on Technology Insight--Gauge, Evaluate, and Review; National Research Council, (2010). *The Rise of Games and High Performance Computing for Modeling and Simulation*. Washington, D.C.: The National Academies Press, page 10, accessed May 21, 2011, [http://www.nap.edu/openbook.php?record\\_id=12816&page=10](http://www.nap.edu/openbook.php?record_id=12816&page=10).

<sup>6</sup> "Africa, ICT Indicators, 2007", International Telecommunications Indicator, accessed May 19, 2011, [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/af\\_ictindicators\\_2007.html](http://www.itu.int/ITU-D/ict/statistics/at_glance/af_ictindicators_2007.html).

<sup>7</sup> "African Undersea Cables", Many Possibilities, accessed May 21, 2011, <http://manypossibilities.net/african-undersea-cables/>.

<sup>8</sup> "Wayan Vota Honored as DevEx 40 Under 40 International Development Leader," inveneo, accessed May 20, 2011, <http://www.inveneo.org/wayan-vota-devex>.

<sup>9</sup> "Pamoja Mtaani Video Game Helps Kenyan Youth Avoid Aids," African Loft, accessed May 21, 2011, <http://www.africanloft.com/pamoja-mtaani-video-game-helps-kenyan-youth-avoid-aids/>.

<sup>10</sup> "The Partnership for an HIV Free Generation," Warner Bros. Entertainment Inc., accessed May 21, 2011, <http://hivfreegeneration.warnerbros.com/>.

<sup>11</sup> "Pamoja Mtaani Video Game Helps Kenyan Youth Avoid Aids," African Loft, accessed May 21, 2011, <http://www.africanloft.com/pamoja-mtaani-video-game-helps-kenyan-youth-avoid-aids/>.

<sup>12</sup> "KENYA'S SMART SOLUTION TO AIDS AWARENESS: GAME ON!," Maisha Film Lab, accessed May 21, 2011, <http://www.maishafilmlab.org/news-events/kenyas-smart-solution-to-aids-awareness-game-on/>.

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