Bigger Cities, Smaller Screens:

Urbanization, Mobile Phones, and Digital Media Trends in Africa

A Report to the Center for International Media Assistance

By Adam Clayton Powell III

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CIMA Center for International Media Assistance

NED National Endowment for Democracy
Supporting freedom around the world

The Center for International Media Assistance (CIMA), at the National Endowment for Democracy, works to strengthen the support, raise the visibility, and improve the effectiveness of independent media development throughout the world. The Center provides information, builds networks, conducts research, and highlights the indispensable role independent media play in the creation and development of sustainable democracies. An important aspect of CIMA's work is to research ways to attract additional U.S. private sector interest in and support for international media development. The Center was one of the of the main nongovernmental organizers of World Press Freedom Day 2011 in Washington, DC.

CIMA convenes working groups, discussions, and panels on a variety of topics in the field of media development and assistance. The center also issues reports and recommendations based on working group discussions and other investigations. These reports aim to provide policymakers, as well as donors and practitioners, with ideas for bolstering the effectiveness of media assistance.

Marguerite H. Sullivan
Senior Director

Center for International Media Assistance
National Endowment for Democracy
1025 F Street, N.W., 8th Floor
Washington, DC 20004

Phone: (202) 378-9700
Fax: (202) 378-9407
Email: CIMA@ned.org
URL: http://cima.ned.org

About the Author

Adam Clayton Powell III

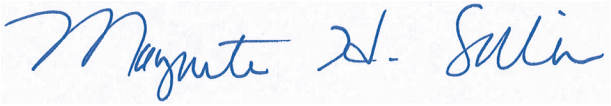
Adam Clayton Powell III is a senior fellow at the University of Southern California's Annenberg Center for Communication Leadership and Policy and a university fellow at USC's Center on Public Diplomacy, coordinating USC projects and forums in Washington, DC, on subjects ranging from public diplomacy and public service media to future business models for cultural institutions and arts journalism. Before his move to Washington in 2010, he served as USC's vice provost for globalization, advancing the university's globalization initiatives and expanding USC's international presence throughout the world. Powell previously served as director of the USC Integrated Media Systems Center, the National Science Foundation's center for multimedia research. Previous roles include vice president of the Freedom Forum; executive producer at Quincy Jones Entertainment; vice president for news and information programming at National Public Radio; and news manager and producer at CBS News in New York. He has worked extensively in Africa for more than two decades, and he has presented training programs since 1988 on digital media for journalists, educators, and policymakers in Africa, Asia, Europe, Latin America, and the United States. Powell is a member of CIMA's advisory council.

Table of Contents

Preface

The Center for International Media Assistance at the National Endowment for Democracy is pleased to publish *Bigger Cities, Smaller Screens: Urbanization, Mobile Phones, and Digital Media Trends in Africa*. The report traces the dramatic spread of mobile telephony in Africa and examines how this is affecting the news media landscape on the continent.

CIMA is grateful to Adam Clayton Powell III, a senior fellow at the University of Southern California's Annenberg Center for Communication Leadership and Policy and a veteran news media executive, for his research and insights on this topic. We hope that this report will become an important reference for international media assistance efforts.



Marguerite H. Sullivan
Senior Director
Center for International Media Assistance

Executive Summary

Africa will become predominantly urban within 20 years, according to a United Nations report, with cities tripling in size and megacities developing throughout the continent. This suggests significant changes for Africans' consumption of media in general and digital media in particular, with implications for Africa's cities, politics, and civil society.

The convergence of African urbanization and technological change, including the rise of digital media, is driving major change. Perhaps most dramatic, use of cellphones and other mobile devices, already widespread, are becoming a nearly universal platform, not only for telephony but also for audio and video information and entertainment. Guy Berger, UNESCO's director of freedom of expression and media development and a former newspaper editor and leader of the South African National Editors Forum, predicted that mobile devices will surpass broadcast receivers as the continent's primary medium.[1]

The convergence of African urbanization and technological change, including the rise of digital media, is driving major change. The use of cellphones and other mobile devices are becoming a nearly universal platform.

African media from Cairo to Cape Town are accommodating this shift. For example, during last year's referendum in southern Sudan, Sudan Radio Service used mobile technology as a tool to measure and engage with its listeners.

For international broadcasters this offers new opportunities. Since 2009, Voice of America has discovered it is serving a very large audience for video on mobile telephones, especially in Kenya. And in December 2010, VOA recorded a noteworthy "crossover" in its audience data: larger and increasing demand for Internet content by mobile telephone, continent-wide, rather than VOA Internet content accessed from computers.

In the coming decade, these trends will continue, as urbanization drives fragmentation of demand. Instead of one mobile telephone for many individuals, urban residents have a telephone of their own–indeed, cellphone penetration in some African cities exceeds 100 percent. Similarly, instead of one television or radio receiver serving many people in rural areas, in cities there are fewer people per receiver–or stated another way, more devices available per capita, enabling and encouraging more individually customized media consumption.

And urbanization will drive fragmentation of supply. Competing media sources are far more numerous in African cities than in rural areas. This may be true worldwide, but it is particularly dramatic in Africa, where all but the most affluent rural residents have limited choices of news, information, and entertainment.

More important, however, is the shift from radio and television receivers to the newer and soon dominant forms of communication, information, and entertainment: mobile telephones and other mobile digital devices. These offer a fundamentally different "media" experience and have already led to an entirely new and largely unrecognized class of independent media–some newly created channels for international broadcasters–serving the African continent. And many of these new broadcasters and media providers are located in Africa, hidden in plain sight, as it were, by their other, more widely recognized roles in African civil society.

While these trends are under way throughout the continent, this report focuses on sub-Saharan Africa for two reasons: First, following the Arab Spring, there have been extensive studies of digital media in that part of Africa–see, for example, *Digital Media in the Arab World One Year after the Revolutions*.[2] And second, the rapid population growth in and urbanization of sub-Saharan Africa are propelling a fundamental shift away from historical population patterns, from centuries-old social structures and from longtime patterns of media consumption.

Background

Africa will become predominantly urban by the middle of this century, according to a 2010 UN report, with cities tripling in size and megacities developing throughout the continent. By the end of the next decade, 2030, 48 percent of all Africans will be city dwellers, and 10 years later, in 2040, one billion Africans will live in cities–more than the entire population of the continent today. By 2050, Africa will become even more urban–a predominantly urban continent–with 60 percent of its residents living in cities.[3]

In just three years, in 2015, Lagos will become the largest city on the continent, with a projected population of 12.4 million people, surpassing Cairo, currently the largest African city. Five years later, in 2020, Lagos will have more than 14 million people, and Kinshasa will have surpassed Cairo to become the continent's second largest city, with 12.7 million people, according to the UN report.[4]

Africa will become predominantly urban by the middle of this century with cities tripling in size and megacities developing throughout the continent.

The growth of African cities is part of the rapid growth of the population of the entire continent, which is without precedent.

"The pace of growth in Africa is unlike anything else ever in history," Joel E. Cohen, a professor of population at Rockefeller University in New York City, said to the *New York Times* this year.[5]

And it will be the cities that experience most of this growth, all across the continent. Metropolitan areas throughout Africa are growing rapidly, with six sub-Saharan cities projected to add more than a million new residents by the end of this decade: Abidjan, Addis Ababa, Dar es Salaam, Kano, and Nairobi. In Ouagadougou, which will also add over a million new residents, the population will have increased by 81 percent from 2010 to 2020. Abuja, Bamako, Luanda, and Lubumbashi will grow by 47 to 50 percent in this decade. Kampala, Mbuji-Mayi, and Niamey will grow even more rapidly–by more than 50 percent, according to the report. Luanda will have over 8 million residents by 2025.[6]

"Urbanization is here to stay," said Joan Clos, executive director of the UN Human Settlements Programme (UN-HABITAT), "and within a few decades, Africa will be predominantly urban."[7]

The growth trend should start to slow by 2030. While it took 27 years for Africa's population to double, from 500 million to over a billion in 2010, it will take just 17 years for Africa to add another 500 million people, for a total of 1.5 billion people by 2027. Then the rate of growth will start to slow, taking 24 years to add the next 500 million people, to grow from a population of 1.5 billion to 2 billion. That population–2 billion people–will be reached in 2050, according to the report.[8]

At the same time, some countries have made great progress in improving their urban centers. In Nigeria, the number of urban slum dwellers fell in the past 20 years from 77 to 62 percent, and in South Africa, it dropped from 46 to 29 percent, according to the report.

But in other countries, rapid expansion of Africa's cities has all but wiped out progress eliminating urban slums. Ghana, Senegal, and Uganda reduced their urban slum populations by 20 percent, according to the UN report, but these advances were overtaken by the creation of new slums as rural Africans poured into cities.

"[S]outh of the Sahara the number of slum dwellers decreased by only five percent (or 17 million), with Ghana, Senegal, and Uganda at the forefront as they managed to reduce the proportion of slum dwellers in their urban populations by more than 20 percent."[9]

This compares unfavorably with North Africa, where the number of urban slum dwellers has been reduced by almost half, from 21 to 12 million, or from 20 to 13 percent of city dwellers. And those numbers are dwarfed by Asian countries, where China and India alone reduced their urban slum populations by an estimated 172 million.[10]

Patterns of media consumption that have begun to change will be subject to an accelerating pace of change, and some longtime observers suggest the very way Africans view themselves has also begun to change.

If history and current media trends are any guide, this suggests significant changes for Africans' consumption of media in general and digital media in particular as Africa transitions to become an urban continent, with implications for Africa's cities, urban residents, politics, and civil society.

To start, mobile phone ownership is higher in cities. For example, the most recent data, from Gallup's 2012 survey of media use in Nigeria, show 85 percent of big city residents own a cellphone, versus 72 percent of rural residents.[11]

The convergence of African urbanization, technological change and digital media are driving major changes. Perhaps most dramatic, cellphones and other mobile devices, already in widespread use, could become a nearly universal platform, not only for telephony but also for audio and video information and entertainment: Guy Berger, UNESCO's director of freedom of expression and media development and a former newspaper editor and leader of the South African National Editors Forum, predicted that mobile devices will surpass broadcast receivers as the continent's primary medium.[12]

Patterns of media consumption that have begun to change will be subject to an accelerating pace of change, and some longtime observers suggest the very way Africans view and define themselves has also begun to change. And that, in turn, is driving changes in the methods that legacy broadcasters, NGOs, and commercial media are using to reach the burgeoning populations of Africa's cities.

Reframing Africa and African Media

So many stereotypes about Africa are incorrect or misleading that we may want to revisit and reframe our view of the continent and its media landscape.

"There are countless books devoted to Africa, but they all speak of a different place: yesterday's Africa," write development economists Jean-Michel Severino and Olivier Ray in their book *Africa's Moment*. "These keys to our understanding are now outdated, so much so that we are unable to make sense of the events that are shaking the continent and transforming it before our eyes."[13]

Severino and Ray compare Africa to India, noting that Africa is geographically larger than India, the African population is comparable to India's, and today the African middle class is larger than India's, powered by a continent-wide economic boom.[14]

And the population as a whole continues to grow, much more rapidly than on other continents. There are two reasons: Infant mortality is dropping, according to the World Bank, down from 135 per 1,000 births in 1972 to 78 in 2008.[15] And the fertility rate in Africa is much higher than in the rest of the world. According to Central Intelligence Agency data, 24 of the 25 countries with the highest fertility rates in the world are in Africa, and of the top 40, 38 are in Africa. The countries with the lowest fertility rates are in Asia.[16] Africa's fertility rates are three times the rates in Europe and more than double the rate in the United States. And this builds on a base of "demographic growth of a scale and speed unique in human history."[17]

More people means larger media use, and that in turn translates into greater support for media of all kinds, from advertiser–and subscription–supported media to cellphone ownership. And more *young* people translates into greater embrace of new media technologies.

This population growth is following an unusual pattern. In the past, population explosions fueled emigration. This time, most young Africans will stay–if not at home, at least in Africa–in cities.

"Cote d'Ivoire had only eleven inhabitants per square kilometer in 1960; it has nearly 70 today, and it will have 110 by 2050," Severino and Ray write. "If Britain had undergone the same population growth as Cote d'Ivoire between 1960 and 2010, it would today count 285 million inhabitants–including 75 million foreigners!"[18]

At the same time, per-capita spending may be far higher than many widely accepted data suggest. Many global economic indices underestimate or miss entirely the undocumented black markets and gray economy that are significant factors. More than 40 percent of Nigerians had cellphones by 2008, but according to the United Nations, 60 percent of them were officially classified as "poor"–which would mean they could not afford mobiles.[19]

A study by the Organisation for Economic Co-Operation and Development (OECD) in 2009 estimated that the majority of all workers worldwide are in the undocumented economy: "Out of a global working population of 3 billion, nearly two-thirds (1.8 billion workers) are informally employed," according to the study, and this proportion will grow to two-thirds by the end of this decade. In sub-Saharan Africa the percentage is even higher: "at least 80 percent" of all non-agricultural workers there are in the undocumented economy.[20]

From this author's personal experience, one encounter was especially memorable and served as a vivid reminder of the limits of official data. Researching mass media audiences during a trip to southern Africa in the early 1990's, it was puzzling that official data for South Africa showed few black people were watching television. Having visited several black townships where television was a popular entertainment, it seemed clear the official numbers had missed much of the audience. After repeated inquiries, government officials asserted that most black people could not be watching television in South Africa because the townships and rural areas had no electric service.

This was correct, as far as it went. At that time, there were no electric power lines serving many townships. But everyone could watch television sets powered by batteries. Each day small vans would drive through the townships to replace rundown TV batteries with freshly recharged ones. It was called "the service," and because economic activity was banned in the townships, it was illegal. ("Service" businesses were also often black-owned, and so they were doubly illegal.) So the official survey never included viewing by black South Africans, by far the majority of the country. That was an extreme case in an apartheid state, but it was typical of the underestimates of black and gray markets found in visit after visit.

Current Trends and the Shift in African Media

African countries vary widely in size, population, and demographics. But in as in the rest of the world, African media are concentrated in population centers and the capital city.[21]

Take Malawi: Its two largest urban areas, Lilongwe and Blantyre, with metropolitan area populations of 1,897,167 and 999,491 respectively,[22] have by far the largest number of radio stations, with more than 10 each. Both cities are also served by terrestrial FM stations broadcasting the BBC African Service.[23] And Malawi's only independent terrestrial television stations–that is, not part of the government-owned Malawi Broadcasting Corporation–are located in those two cities, including, in both cities, local stations broadcasting religious programming from the Trinity Broadcasting Network [www.tbn.org] in the United States.[24]

Malawi's media data are interesting in another respect: Mobile telephone and Internet adoption have soared in the past decade. For telephones, subscribers increased from 0.8 per 100 inhabitants in 2000 to 16.9 per 100 inhabitants in 2009. And in the same decade, Internet use increased from 0.1 to 4.7 per 100 inhabitants.[25]

> ***"The cost of mobile phones, competition amongst service providers which is bringing the calling rates down, low cost of maintenance, non reliance to constant power supply mobility are some of the reasons why its penetration in Africa is high."***
>
> — Cleopa Timon Otieno, Freedom Fone Blogger

But even these numbers may underestimate what is happening. In 2010, Gallup used a different research method: Rather than look at statistics, Gallup researchers simply asked Africans whether they had mobile phones. An absolute majority–57 percent–in sub-Saharan African countries said they already were using cellphones. For South Africa, the number was 84 percent.[26] Gallup also found access to mobile telephones is greater in urban areas. So as Africa becomes more urban and wealthier, the penetration of mobile telephones will become higher.

Research data gathered by the Voice of America confirm these trends: Late in 2011, VOA recorded a "crossover." For the first time, Africans' use of VOA on mobile telephones exceeded Africans' use of the VOA website [http://www.voanews.com/] on computers. Broadcasting still reaches more African listeners and viewers, but the trend is clear.[27]

As is so often the case in media trends worldwide, the reasons for the growth of cellphones are cost and convenience.

"The cost of mobile phones, competition amongst service providers which is bringing the calling rates down, low cost of maintenance, non reliance to constant power supply and mobility are

some of the reasons why its penetration in Africa is high," reports Freedom Fone blogger Cleopa Timon Otieno.[28]

That is the present, or rather the past. In just three years, in 2015, there will be a 60 percent increase in the number of mobile telephones in Africa, according to Gabrielle Gauthey, executive vice president of Alcatel Lucent, and almost all of them will be Internet enabled.

"In 2000, you had about five million mobile phones in Africa," Gauthey said. "Today, we have about 500 million. In 2015, we expect it to be 800 million. Already, 20 to 30 percent of these phones are Internet enabled. In 2015, it will be 80 percent."[29]

Of course the wealthy will always be a market for the latest smart phones: Africa's elite have lives that are very different from most of their fellow Africans, and they can afford all of the luxuries that appeal to moneyed elites worldwide. In Nigeria, for example, there are 200 owners of ultra-expensive cars–those that cost up to $180,000–and Bentley, Ferrari, and Porsche view Africa as a key market.[30]

But the market for smart phones will be driven by a mass consumer base of middle and low income Africans, especially those based in cities. Gauthey noted mobile telephones are far from luxuries: they are now essentials for poor African city dwellers:

> In the slums of Kenya's capital Nairobi, 80 percent of people prefer to skip a lunch so that they can afford having a mobile phone," she said. "They are willing to make that trade-off because a mobile phone helps them to optimize their lives in the long term through better access to information and resources, including food. Access to information has become as vital as water and electricity.

This is reinforced by new data on cellphone penetration among the lowest-income Africans, in a continent-wide Gallup survey conducted in June 2012. Of all Africans surveyed living on less than $1 a day, half had access to mobile phones. Of those Africans in the bottom quintile–the lowest-income 20 percent–the number was the same. Absolute majorities of Africans living on less than $1 a day owned their own cellphones in countries including Botswana, Kenya, Nigeria and Zambia. And together with those who reported they had access to a relative's or friend's mobile, cellphone penetration exceeds 80 percent of poor Africans in countries including Kenya, Zambia, and Botswana. There was only one country–Mali–where a majority of those living on less than $1 a day did not have access to a cellphone.[31]

But as in so many other areas, Africa is full of surprises, developing along unexpected lines. For example, just as BlackBerry sales have all but stopped in North America, they have soared in South Africa, where BlackBerry holds 70 percent of the market for smart phones. The key: In Africa, BlackBerry users pay a flat fee for Internet service.[32] This means BlackBerry users can download news, information, and entertainment for no additional cost above their monthly payment plans.

"One of our major selling points is BBM [BlackBerry Messenger], one of the largest social mobile networks in the world with more than 55 million active users worldwide," Waldi Wepener, a RIM spokesperson, told *PC World*." BBM penetration in key African markets is amongst the highest in the world (98 percent in South Africa); the youth market especially loves BBM, which enables them to share text and voice messages, pictures and video clips."[33]

It is worth repeating that data on African economic development and African media are often not reliable. And sometimes the data are not there at all–or are held in proprietary data bases.

"I would like to [see] communication regulators insisting on better, more timely, and more comprehensive usage data from mobile operators," wrote Steve Song, one of many calling for more open data on cellphone use. "I would like them to negotiate and agree on standards for making sanitised mobile operator statistics available to researchers and the public at large. Even better would be for regional regulatory bodies to facilitate common standards across countries."[34]

But if the data are not always firm, the trends are clear–and dramatic. For example, high-speed Internet service may become less expensive for all users, courtesy of new underwater cables which offer faster, better Internet service–and much more capacity, which should lower prices.

It will also mean messages travel shorter distances: email from Cameroun to Benin has had to travel north to Paris before being routed south to a neighboring country. With the new cable, messages can travel a shorter distance along the African coast.[35]

The manner in which Africa's digital infrastructure is built is not without political implications. Pricing of services is just one factor that is at stake, and the companies or governments that create and structure the underlying digital backbones are creating the foundations on which proliferating and increasingly essential services will be constructed.

The new cable project illustrates another point: The manner in which Africa's digital infrastructure is built, and who builds it, is not without political implications. Pricing of services is just one factor that is at stake, and the companies or governments that create and structure the underlying digital backbones are creating the foundations on which proliferating and increasingly essential services will be constructed.

The role of the public sector is still key. Kenya is one country where the government has embraced the promise of economic benefits from the new connectivity. Armed with a $169.5 million Transparency and Communications Infrastructure fund, that country now has the second-fastest broadband service, after Ghana. Internet pricing has declined by 90 percent, and in Nairobi, where mobile telephone use is nearly universal, this is how most people get online. The government justifies the investment by reporting a direct impact on economic growth.[36]

Nairobi also has facilities that evoke those found in Silicon Valley, physical spaces that encourage digital communication startups. One of the best known is iHub, which brings together web designers, programmers, tech companies, and investors to incubate "great ideas that will lead to development of new technologies in Kenya."[37]

"It could bear a lot of fruit in a place like Kenya, where you have a lot of raw talent but very little support for it," said Sam DuPont, program officer, Internet freedom, Freedom House.[38] The iHub center in Nairobi is also a source of African tech leadership: Ory Okolloh, who helped to create iHub–and helped start Ushahidi–was hired by Google to be its policy manager for Africa.

The iHub concept is also spreading around the continent; DuPont pointed to hivecolab in Uganda [http://hivecolab.com/], the Innovation Hub in Lagos [http://afrinnovator.com/blog/2011/01/11/wennovation-hub-innovation-hub-launches-in-lagos/] and Activspaces Cameroon [http://activspaces.com/] as examples. Other regional digital technology centers include South Africa's MLab [http://www.mlab.co.za/], launched in the fall of 2011.

Opportunities for Independent Media

Africa's population is growing rapidly, as is its middle class. Africa's cities are growing even more rapidly. And mobile telephone penetration is following the same trend–which may be understated in official government data.

African media across the continent are accommodating this shift. During southern Sudan's referendum in 2011, Sudan Radio Service used mobile technology as a tool to measure and to engage with its listeners. Sudan Radio invited listeners to text their feedback, and they reported receiving 400 SMS responses.

Sudan Radio also monitored the quality of remote transmissions using a survey sent to the ten regions it served, asking workers to transmit results via their mobile telephones. Using SMS, the survey worked on basic mobile telephones, with no need for more expensive smart devices.[39]

The experience of Sudan Radio Service was in an area with relatively little urbanization. In more urban areas, the numbers would be much larger, but this shows how mobile telephones can effectively reach into rural areas across long distances.

The major power that has recognized and helped fuel Africa's economic growth is China. Seeking access to Africa's raw materials, Beijing has invested heavily in infrastructure, loans–and media. Central China TV from Beijing can now be seen throughout the continent. This is not just on cable: CCTV is on broadcast, over the air in some capitals. By the middle of the last decade, a visitor to Nairobi could find English-language CCTV on a VHF channel, and some state broadcasters were using the CCTV feed to fill off-hours when local programming was not provided.

For international broadcasters, mobile telephones can offer new opportunities: Since 2009, Voice of America has discovered it is serving a very large audience for video on mobile telephones, especially in Kenya. And in December 2010, VOA recorded a noteworthy "crossover" in its audience data: larger and increasing demand for Internet content by mobile telephone, continent-wide, rather than VOA Internet content accessed from computers.

As Africa becomes a predominantly urban continent, the majority of the population will live in cities where they are likelier to encounter, and use, Chinese media.

Residents of Africa's cities are now shifting to identify with those urban areas, rather than with their more traditional roots in the countryside.

"Given the demographic dynamism of African cities, the *majority* [emphasis added] of the sub-Saharan population has been born in town," write Severino and Ray. "What does this mean? It means a genuinely urban identity is in the process of transformation, steadily replacing that of the

countryside. This emergence of a new order generates profound and sometimes violent breaks in the organization of African societies."[40]

There will also be breaks with traditional viewing and listening patterns, breaks that we are just beginning to measure.

In the coming decade, these trends will continue, as urbanization drives fragmentation of demand: Instead of one mobile telephone for many individuals, urban residents have a telephone of their own–indeed, cellphone penetration in some African cities exceeds 100 percent. Similarly, instead of one television or radio receiver serving many people in rural areas, in cities there are fewer people per receiver–or stated another way, more devices available per capita, enabling and encouraging more individually customized media consumption.

And urbanization will drive fragmentation of supply: Competing media sources are far more numerous in African cities than in rural areas. This may be true worldwide, but it is particularly dramatic in Africa, where all but the most affluent rural residents have limited choices of news, information and entertainment.

Implications for the Definition of Independent Media

This example of trans-national African mass media may miss the largest shift taking place. As the continent moves from a rural base with access to limited broadcast frequencies to an urban base centered on mobile telephones, the very nature and definition of media may need to be reexamined.

Consider international broadcasting: Traditionally international broadcasters were assumed to be such broadcasters as the Voice of America (VOA), the BBC, al Jazeera, China's CCTV and South Africa's SABC. Some might also include commercial global news services, such as CNN from Atlanta and Sky News from London.

The traditional broadcasters are launching new services that are very different from their programming in the days of short-wave radio. Voice of America, for example, has launched a new journalism program in Africa, with a hundred trained citizen journalists filing reports from the Congo and creating new centers of conversation on social media sites.[41] The VOA project is just part of the broadcaster's move into interactive social media, strengthening its service to mobile telephones and computers. But in addition to VOA, BBC, and CNN, now there are other providers with similar global reach, news and information services and cultural programming. However, these newcomers may not have traditionally been characterized as international broadcasters.

Google is one example. It has no news bureaus, but its Google News [http://news.google.com/] offers news and information services tailored for more than 70 countries, from Argentina to Zimbabwe, in over a dozen languages–all for free. Travelers know this well, because logging on to Google News from outside the United States automatically routes the reader to the Google News site serving that country. For news from home, Americans must reset the Google News national selector to the U.S. edition–and select whether they want news from the United States in English or Spanish.

Yet Google does not appear on many lists of global news services, because instead of a traditional team of reporters and editors, Google News relies on computers. Its software-driven site collects news stories from hundreds of newspapers, magazines, radio stations, and television broadcasters–and thousands of Internet sites–and then presents the news, tailored to the country selected by the reader and to the subjects the reader has selected as important or interesting.

Google also has a collection of channels [http://www.youtube.com/activism] devoted to non-profits and NGOs. From the Gates Foundation [http://www.youtube.com/user/gatesfoundation] and other philanthropies to such traditional religious organizations as Catholic Relief Services [www.youtube.com/user/catholicrelief], they are represented on YouTube channels. Africa-focused NGOs with channels include Books for Africa [http://www.youtube.com/user/booksforafrica] and Mercy Ships [http://www.youtube.com/user/mercyshipsvideos], which provides medical care from floating hospitals.

In addition, Google provides a huge and growing supply of educational programming, again through its YouTube subsidiary. Go to the home page [http://www.youtube.com/] and among categories on the left, click on "Education." There you have–again for free–programs ranging from basic lessons in English to lectures and courses from Harvard, MIT, and Yale. Some universities have their own channel on YouTube, including such well-known institutions as Oxford [http://www.youtube.com/user/oxford] and Stanford [http://www.youtube.com/user/stanforduniversity].

In Africa, YouTube Education has similarly been embraced by well established universities that offer their own channels, including the University of Cape Town [http://www.youtube.com/user/uctsouthafrica] and Uganda's Makerere University [http://www.youtube.com/user/makererertube]. These have been joined by newly invented Internet-centered schools, such as the African Virtual University [http://www.avu.org/] which has its own African Virtual University channel [http://www.youtube.com/user/avuorg].

Google and other Internet providers will increase their reach as more mobile telephones become Internet-ready smart phones. At the same time, African providers of news information and entertainment will be able to take advantage of the Internet's low barriers to entry and free distribution.

These African universities' YouTube channels do not appear on many lists of international broadcasters, but they are providing thousands of hours of instruction and information to a global audience. They are in every sense of the term international broadcasters–and independent media. Instead of receiving them on what we may still call a radio or television set, viewers tune in on their smart phones, tablets, and computers.

Another difference between Google and traditional international broadcasters is that, like CNN and Disney, Google is a commercial company. But CNN and Disney typically require the permission of a country's regulators to provide service and do business there. Some international broadcasters, notably Al Jazeera in the Middle East, circumvent national regulation using direct-to-home satellite distribution.

By contrast, Google and YouTube are freely available worldwide on the Internet. As more and more mobile telephones become Internet-ready smart phones, Google and other Internet providers will only increase their reach. And at the same time, African providers of news information and entertainment will be able to take advantage of the Internet's low barriers to entry and free distribution.

By no means are these trends an unmixed blessing. Google and other aggregators rely on the reporting and blogging of contributors, whose skills, interests, and biases vary greatly. In Africa as in much of the world, access to primary sources of official information is limited to accredited journalists. Indeed, in one-quarter of the world's countries, governments limit such credentials to those with licenses–issued by the government–who can then report on the government and hold it accountable.[42]

Some new media familiar to Americans have been adopted by Africans and adapted to meet their own needs. In Kenya, Twitter is used to monitor reporting about the country, at Kenyans on Twitter, better known as #KOT. Their tweets offer a running commentary on reporting on and about the country.[43]

The free messaging service MXit [http://www.mxit.com/index.html] has grown rapidly and now claims to be Africa's largest social network, with 50 million users across the continent, according to its website, using 3,000 different kinds of mobile handsets. Users can also buy music clips, play games, and engage in e-commerce. In South Africa, for example, by 2009 MXit was the third most popular mobile site, behind Facebook and Google, and ahead of Wikipedia and YouTube, according to a report by Berger and Zilhona Masala for the Open Society Foundations (OSF).[44]

In July 2012, Google introduced GMail SMS, a free messaging service that can run on inexpensive "dumb" mobile phones–no Internet access needed.

"We're excited to be making this new service available in Ghana, Nigeria, and Kenya," wrote Geva Rechav, Google's Product Manager, Emerging Markets, in a blog announcing the new service. "You can now send and receive emails as SMS messages using your mobile phone, regardless of whether or not your phone has an internet connection, like wifi or 3G. Gmail SMS works on any phone, even the most basic ones which only support voice and SMS."[45]

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And many digital devices familiar to Americans, such as the Kindle, are being adopted and adapted to the continent's needs. In the United States, users load their favorite books onto the device. But in Uganda, educators are using it in classrooms because, unlike laptops or tablets, they can run for weeks on a single electric charge. As part of a two-year, three-country experiment funded by Amazon and personally by Amazon CEO Jeff Bezos, the Kindles have become a popular innovation. And because African books and readings can easily be loaded, teachers can assign lessons featuring their own country's authors and experts.

"The first books we got were mainly about the U.S., with kids playing in ice—which our pupils would not understand. With the Kindles, there are African authors, African names which are exciting the kids," Ester Nabwire, head teacher of Uganda's Humble Primary School, told the *Wall Street Journal*.[46]

There is also an Africa-developed educational tablet, eLimu [http://e-limu.org/], tailored to courses specified by Kenya's Certificate of Primary Education. Using games, three-dimensional animations, and songs, eLimu includes subjects ranging from civics and human rights to business and entrepreneurship.[47]

But in education as in the rest of society, it is mobile telephones that are usually the key, because they are so ubiquitous. One application enables deaf children to participate in school.[48] Some of these innovations blur the boundary between education and media: Perhaps educational services should be considered independent media, just as America's Sesame Workshop [http://www.sesameworkshop.org/] developed into an international broadcaster.

Many of the most popular digital media innovations have been entirely developed on the African continent. Perhaps the best known in North America and Europe is Ushahidi [http://ushahidi.com/], which develops free open-source software, initially to monitor and map the violence that followed Kenya's elections in 2007. Spinoffs have included Swift River [http://ushahidi.com/products/swiftriver-platform], which provides real-time monitoring of very large data sets on the Web, and Crowdmap [https://crowdmap.com/], which enables users to run their own versions of Ushahidi without even installing it on Web servers, as it can run in the cloud.

Newer African-developed digital tools are less known in Europe and North America. One example is Hatari, which lets Kenyans report bribes and corruption by email, text, or tweet.

Another well-known Kenyan-developed service running on mobile telephones is MFarm [http://mfarm.co.ke/]. Farmers can SMS 3555 and get the latest price information about their crops–and which markets have the best price for them. Then the farmers can use MFarm to join together to sell in a group and to buy supplies collectively.[49] A similar service for dairy farmers is offered by iCow [http://www.icow.co.ke/], which provides animal health information and helps farmers to monitor nutrition and milking calendars, right down to an individual cow. Developed at Nairobi's iHub, iCow received wide attention after winning the Apps 4 Africa Challenge award http://apps4africa.org/].

Newer African-developed digital tools are less known in Europe and North America. One example is Hatari [http://www.hatari.co.ke/], which lets Kenyans report bribes and corruption by email, text, or tweet.[50] Hatari could develop into something that resembles independent media. Another is M-Maji, which provides real-time information to urban slum dwellers about clean water–prices, suppliers, and availability–all on cellphones. As the developers explain on their website, "Many slums like Kibera lack access to clean drinking water, but they don't lack access to mobile phones."[51]

Mimiboard is another rapidly spreading innovation based on mobile phones [http://www.mimiboard.com/]. It is a virtual notice board service that won the most votes at this year's Open Innovation Africa Summit.[52] Users can participate on their mobile telephones via the Web or using SMS, posting events and information about social and political issues, sports, and entertainment in their micro-local communities.[53]

Mimiboards are attracting interesting partners in the media and NGO worlds, including *The Zimbabwean,* a digital news provider published in London by Zimbabwe journalists in exile [http://www.thezimbabwean.co.uk/pages/about-us]. That news service has already

begun Mimiboards for several local regions, hoping to connect more often and more deeply with its readers.[54]

Health care is also a powerful draw, and combining health messages with entertainment has been a recipe for success in most of the world. Young Africa Live is one example, with a mix of live chats, news stories about celebrities, dating tips–and permanently posted information about HIV/AIDS.[55] Young Africa Live could be considered that continent's analog of the start of MTV News in the United States in the 1990's.

Whether or not these new websites, social media, and online services are considered news media, they do represent an explosion of choices. Faced with an expansion from one or two broadcast stations to 10 or 12, most people can cope. Faced with thousands of Internet sources, abundance can become problematic.

Bruce Sherman, director of strategy and development for the U.S. Broadcasting Board of Governors, pointed to Rwanda as an example, describing the proliferation of unofficial sources and individual bloggers there as a "hurdle for communicating with those audiences."[56]

In Rwanda, this has led to the seeming contradiction: Rwandans overwhelmingly believe that their country's media are free, by 67 percent to 11 percent, according to Gallup data.[57] But according to the Freedom House annual rankings, the Internet in Rwanda is "partly free," and that country's press is "not free."[58]

Sherman said this illustrates confusion caused by an abundance of sources: Rwandans can turn on their mobile phones and computers and see a barrage of different sources. But that can be misleading: "More media does not translate into media freedom," Sherman said. "And yet if you are on the ground and you are bombarded with sources of information, it is the new clutter, and busting through the clutter … is a huge challenge."[59]

Repressive governments can also take advantage of the new digital pathways and media based on mobile and handheld devices, and Salil Shetty of Amnesty International wrote that he expected governments' use of new technologies to be more effective than individual dissenters.

> It is and will continue to be a tool used by both those who want to challenge injustices around the world and those who want to control access to information and suppress dissenting voices. Arguably, FM Radio and mobile phones have done more to promote and protect human rights in Africa than most other conventional methods. Innovative use of crowdsourcing by the Ushahidi.com website in Kenya has opened up a whole new set of possibilities for conflict prevention.
>
> Technology will serve the purposes of those who control it–whether their goal is the promotion of rights or the undermining of rights. We must be mindful that in a world of asymmetric power, the ability of governments and other institutional

actors to abuse and exploit technology will always be superior to the grass-roots activists, the beleaguered human rights advocate, the intrepid whistleblower and the individual whose sense of justice demands that they be able to seek information or describe and document an injustice through these technologies.[60]

How Media Are Responding

It is interesting to note that mobile telephone-based content has not for the most part been aggressively pursued by the telecommunications giants:

> Telecommunications companies have generally not entered the content business, and the use of communication and information technologies by civil society is limited, although a few niche online media operations have emerged," wrote Berger and Masala in their report for OSF. "Nevertheless, most mainstream media companies are themselves operating in both cyberspace and mobile space."[61]

And some government broadcasters have backed away from their public service mission, often because of the bottom line. Consider the South African Broadcasting Corporation (SABC), in many ways South Africa's equivalent of the BBC:

> The commercial dependency of SABC's business model entails revenues in the following order of contribution magnitude: advertising (and other commercial revenues), licenses, and government grants. This revenue model entails SABC chasing audiences and advertising on an identical basis to commercial broadcasters, with negative impact on the broadcaster's services in minority languages and on programming that services the poorest of the poor.[62]

And yet SABC has moved into mobile telephones as a cost-effective public service medium that would help promotes its broadcast coverage–and thus contribute to advertising revenues. Berger and Masala write:

> In the 2009 elections, SABC piloted a joint project with Vodacom entailing an interactive mobile solution using SMS and other mobile applications. The intention was to integrate these tools and drive audiences to radio and television … Audience members could participate by sending an SMS, being directed to social networking sites, or getting updates via Twitter. Citizen journalists were invited to create content.[63]

But Berger and Masala note that SABC did not repeat the mobile phone coverage in the 2011 elections, leaving the field open for others.

This lack of service has created an opening for other providers, from legacy media to entirely new players. Consider as a case in point one of the best-known legacy media organizations preparing to move into this new space, the Voice of America.

Expanding to new media platforms, VOA is building on its continent-wide reach–almost half of VOA's entire audience worldwide is in Africa.[64] VOA is embracing technological innovations based in large part on information from its network of journalists and other contacts on the

ground, and the network is planning for changes in content those innovations are enabling and requiring.

"We have to appreciate how rapidly it is changing," said Gwendolyn F. Dillard, director of VOA's Africa Division. "We need to stop thinking about legacy systems. This is a paradigm change. We need to get our heads around this."[65]

According to Dillard, most Africans now listen to and watch legacy media, but television and radio receivers are being eclipsed by mobile phones.

"There is 1,000 times faster growth in mobile," she said. "Does it make sense to put resources into terrestrial television–or any kind of television?"

Telecommunications companies have generally not entered the content business, and the use of communication and information technologies by civil society is limited, although a few niche online media operations have emerged.

In at least one country, cellphone penetration already exceeds television: In South Africa, 82 percent of households have television sets. (Only 77 percent have radio receivers, but total radio penetration is over 90 percent when listening in "vehicles, workplaces and shops" is included–as well as listening over mobile phones.).[66] But mobile telephone penetration had reached 100 percent by 2010, according to Berger and Masala, and faster 3G service already reached 60 percent of users.

To reach Africans on their mobile phones, entirely new forms of media are being developed. One fast-growing technique is Interactive Voice Response (IVR), because it is cheap (or free) and tailored to the individual. It allows users to leave recorded messages, field questions and answers, and to provide market updates and weather reports.[67] Cellphone users can interact by text (SMS) or by voice.

> It takes advantage of audio to address language and literacy barriers when reaching out to the millions of people living on the margins of the information society. … [I]t can be a perfect tool for agricultural extension service providers to reach out to farmers and also allow the farmers to listen to instructions via their mobile phones as well as leave voice messages for the service providers. Those working in advocacy issues can also use it to provide a hotline for leaving messages, recording campaign audio to be shared by their targeted groups. Edutainment is also an area that Telecentres can take advantage of by creating educative audio content which people can retrieve by dialing a given number to listen to. Short audio dramas or plays can be recorded in various episodes to keep listeners calling in.[68]

This new interactive tool is being adopted by Voice of America as a companion to more conventional broadcasting.

"We are aggressively pursuing IVR to complement streaming," said Steven Ferri, Web managing editor of VOA Africa and head of VOA Mobile and Digital Media on the continent. Ferri added that VOA is finding that Africans use mobile phones in a very different way than Americans do, enabling the broadcaster to provide long-form program services over the telephone.[69]

"Africans are listening to their phones for 20-minute programs," said Ferri. "No one in America would do this. You really have to walk away from your American media experience."

To build VOA's presence in IVR, Ferri met in May 2012, with what he described as "the five largest telcos in Africa," to develop strong ties and continuing program services, not just one-time experiments.

"Right now we have one-offs," he said, and instead VOA wants to build regular, continuing programs with "top-level telcos and mid-level aggregators."

And legacy broadcasters, according to Ferri, need to be alert to partner with high-tech companies.

"We want to make certain we have feelers out to the Googles, Twitters, Facebooks," he said, to keep track of and utilize the latest technologies.

"Africans are listening to their phones for 20-minute programs. No one in America would do this. You really have to walk away from your American media experience."

— Steven Ferri,
VOA Africa

But for all of the program and service providers in Africa, that means using new forms of media, often accommodated in expense budgets that already support traditional broadcasting–and that are not likely to be increased. It is what Jay Tolson, director of Global News Network for the U.S. Broadcasting Board of Governors, calls the "bow tie" problem, where one audience is increasing while another remains flat or shrinks.

"When do you start tipping out of old media and into new media?" asked Tolson. "It's a matter of shifting resources. And we need to make this case [for newer media delivery systems] more compelling."[70]

By way of context and comparison, Africa represents almost half of VOA's worldwide measured audience, but the 2012 budget for VOA Africa is $13 million–one-third of the BBG's budget for Latin America alone.[71]

But programming content for mobile telephones is not the same as programming content for radio or television. So one challenge is to adapt to the way Africans use their mobile phones–and for what categories of information.

"Short, light, vocal, personal, intimate" is how Ferri described successful programming for cellphones. "Deeply, deeply personal is the sweet spot." Ferri said the data are clear about what drives audiences to mobile telephone content: "Dating, ring tones, horoscopes, and Bible and Koran quotes."

Another popular category of content: anything about jobs and entrepreneurship, as well as English language instruction "even for people on low-end phones."

VOA's experiments for mobile content combining information and entertainment have sometimes been quite different from traditional VOA content. Ferri said they tried to produce a game show where the winner would get a green card to immigrate to the United States. That could be a hot item in Africa, but U.S. immigration officials did not approve.

"You have to have mission-relevant content," said Tolson, to counter criticism that content is being trivialized.

Health information is a major priority for VOA's new telephone-based services. A pilot program in five villages in northern Nigeria is testing a combination of technologies in an area that is predominantly low income and described as "underserved" by VOA's Dillard, because it is so isolated.

"You cannot walk to the nearest clinic," she said, "and you cannot pay for the clinic." Using IVR, "we know what their health problems are, and they never need to leave the house."

Dillard described one application: A woman wakes up at 2 a.m. and her child has a fever. She can use dial-up radio, in voice or text, to describe her child's symptoms and receive, in response, advice on what to do. It is, as she describes, a "customized, on-demand" health program.

Ferri said VOA has developed 30-minute health programs for cellphones, and working with mobile phone company MTN, they enable listeners to send questions and comments via text. In addition, VOA can collect health information on nutrition, on children, and on other metrics to optimize the health program services.

"We are trying to marry a radio show with the reality that people have low-end phones," he said.

These are intriguing experiments, but Dillard said it is not enough.

"These [demonstration projects] are all great," she said, "but what we need to be prepared for now at VOA is not the one-off projects. We need to start to develop content streams and to use different platforms."

And the new content for mobile telephones is not your father's VOA."How to deliver information to people who have no interest in news" is how Dillard described the new mission for telephone-delivered content. And it is generational: "News is what their fathers listened to."

Ferri's answer is what he called "a 360-degree package, with music," which VOA was piloting in Kenya, Nigeria, and South Africa. But again one question is how to pay for these new services. Tolson suggested VOA could establish a trust–similar to the BBC World Service Trust–for "health agendas."

How Africans Express Identity Through Mobile Phones

As cellphones become ubiquitous, Africans are adjusting the technology to their identities and to the ways they live, and often these are different in unexpected ways. One obvious feature of mobile telephones is mobility, but in Africa that has a different connotation.

"In Africa, people are constantly on the move, with no fixed address," noted Dillard. "We need to be prepared to reach people born into refugee camps. We are using mobile [telephones] to address mobile people." Another important factor to remember is literacy–and a new trend in language skills.

"This generation is quasi-literate," Dillard said, adding that the ability to get information from writing is limited. And she said the ability to convey information in the languages of the old colonial empires–including English–is fading. South Africa is an example, with 11 official languages, and English is not first– or second or third.

With lower barriers to entry—eliminating the need for expensive short-wave transmitters or access to FM or television frequencies—anyone can launch a mobile based service. Some of the new entrants into what had been the province of national and international broadcasters are foundations and NGOs that are moving into the mobile telephone space.

"Eleven languages are officially recognized, and the spread for adults, according to the last available census figures (2001) was: Zulu 23.8 percent, Xhosa 17.6 percent, Afrikaans, 13.3 percent, Pedi 8.2 percent, English 8.2 percent, Tswana 8.2 percent, Sotho 7.9 percent, Tsonga 4.4 percent, and other languages 7.2."[72] The most popular radio station in the country broadcasts in isiZulu.[73]

Beyond language, literacy, and mobility, there may be another, even more fundamental shift that is enabled by mobile telephones.

"We are approaching people in an entirely different way," Dillard said. The old way in Africa was communal. "People defined themselves in groups [tribe, village] so you broadcast to groups." The new way, according to Dillard: Africans increasingly define themselves now more as individuals. So you broadcast to an individual "with a mobile device in a pocket or hand bag."

But VOA is not the only content provider moving into the mobile space. With lower barriers to entry–eliminating the need for expensive short-wave transmitters or access to FM or television frequencies–anyone can launch a mobile-based service. Some of the new entrants into what had been the province of national and international broadcasters are foundations and NGOs that are moving into the mobile telephone space.

Freedom House, which has two regional field offices in Africa, is aggressively exploiting opportunities in new media based on mobile telephones.

"We use mobiles for new media campaigns for public awareness," DuPont said. "The tools we use are predominantly mobile-based. The groups we work with use the web, e-mail, social media to certain degrees. But for any communication for mass scale, we use SMS."[74]

But in countries with repressive regimes, any communications via cellphones have a huge vulnerability.

"Mobile is a scary platform," he said. Cellphones "are one of the least secure technologies we have for secure communications. Any SMS that bounces off the [cellphone] tower can be read by the mobile operator–but also by anybody sitting beneath the tower with a thousand-dollar piece of equipment."

"Mobile is a scary platform. Cellphones are one of the lease secure technologies we have for secure communications. Any SMS that bounces off the cellphone tower can be read by the mobile operator but also by anybody sitting beneath the tower with a thousand-dollar piece of equipment. "

— Sam DuPont, Freedom House

But for getting the word to Africans continent-wide, mobile has become the medium of choice. And in Africa, some of the new, popular applications–ones that are free or close to it–originated from Asia. One combines dial-up radio with what amounts to a universal help desk.

"There's a tool called Question Box [http://questionbox.org/], originally deployed in India," DuPont said. "It is something like a free pay phone, set up in a remote village. People living way out in the boonies can pick up the phone and make a call to a centralized call center and ask anything, whether it is weather information, health information, or how to cure an illness in their livestock. It could be applied very broadly, certainly within a city for those without ready access to the network."

And according to its website, Question Box has become more than just a source of information for callers with questions. It is also a platform for reporting.

"Question Boxes are useful both to get tips and reporting from citizens on the ground, and to give citizens a point of access to learn the latest news updates live," according to the website.[75]

DuPont also pointed to another free application used by Freedom House, a tool operating from headquarters in Zimbabwe called Freedom Fone [http://www. Freedom Fone.org/]. It was designed from the start as a part of the independent media community, linking citizen journalists to a central resource with a do-it-yourself toolbox.

"Create information-on-demand services with this free, open source telephony platform directed at mobile phone users," reads its website. No Internet needed.

"You can call a central number and make reports, documenting human rights violations or something less political in nature, sharing a bit of news, best practices for farming," DuPont explained. "Then you can call another number to listen to reports. It is very much an open platform that could be associated with any type of problem. Originally it was to address the lack of citizen media or independent media. It caught on very well in Zimbabwe."

Again from the Freedom Fone website:

> There are no geographical limitations to Freedom Fone. By taking advantage of both audio and text functions, Freedom Fone makes it easy to create and share information across literacy barriers in any language. We provide an effective, user-friendly and low-cost solution that helps empower marginalised communities and bridge the digital divide.

That paragraph may serve as a concise summary of the roles, opportunities and possible futures of the new mobile-based media platforms that are being introduced across the continent. These new platforms are not the print, broadcasting, or Internet media familiar to North America or Europe. More and more, these innovations rely on assumptions and contexts that are unfamiliar in the northern hemisphere. And that may be why these home-grown or African-adapted applications are successful on the continent.

Conclusions

As Africa becomes increasingly urban, the reach and use of mobile telephones and other portable digital devices inevitably are becoming a mass medium.

This shift creates new opportunities for existing broadcasters and publishers. And it creates new opportunities for a much larger number of new independent media, including new providers of news, information, education, health care, entertainment–and program streams combining many or all of these elements.

It also creates new ways for citizens to monitor and petition their governments. And it creates new avenues for governments to reach and influence citizens, for good or ill.

And all of these shifts are taking place very rapidly. Africa's population growth is unprecedented in human history. It is not unlikely that Africa's shift to new forms of digital media will be similarly rapid–and dramatic.

Guy Berger's prediction of a day when mobile devices are Africa's primary medium may become a reality sooner than those in North America or Europe can readily appreciate. And this will drive and enable dramatic changes in communication for and by Africans.

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Advisory Council
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Monroe E. Price

Adam Schiff

Kurt Wimmer

Richard Winfield

Center for International Media Assistance

National Endowment for Democracy
1025 F Street, N.W., Suite 800
Washington, DC 20004

Phone: (202) 378-9700
Fax: (202) 378-9407
Email: CIMA@ned.org
URL: http://cima.ned.org

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