A human rights approach to the mobile internet

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Abstract

The mobile internet is helping to advance human rights and capacities through providing new opportunities for citizens to share information and ideas and to participate in public life. Mobile phones facilitate instant and ubiquitous communication, thereby increasing the power of citizen journalism, crowdsourcing and other forms of expression. Mobile phones are also helping to bridge the digital divide for people who do not have access to computers and fixed-line connections. However, a number of challenges need to be addressed in order to harness the full potential of the mobile internet for universal human rights and citizen empowerment. These include: high access costs, limitations in the usability of hardware and software for first time users, unequal capacities to create and access relevant content, the closed architecture of the mobile internet, the persistence of social inequality and lack of respect for cultural diversity.

Even once these issues are addressed, the mobile internet should not be viewed as a substitute for fixed-line connectivity and computers. Fixed-line computers are better suited to internet activities that require large bandwidth and powerful data processing. Moreover, the impact of mobile communications on human rights is often greater when they are operating in synergy with other media and technology.

This paper proposes that internet policy in this area should have two inter-related objectives. Firstly, it should ensure that the internet is as empowering as possible for people who can currently only access it via mobile phones. Secondly, it should spur the universal roll out of high-speed and quality connections via both computers and mobile phones. The overarching goal is to foster an inter-connected, global internet environment in which all people can create, access and share information and ideas via any device they choose.

1. Introduction

The internet has given citizens across the world enhanced opportunities to communicate in the public domain, breaking down commercial, social and geographical boundaries to communication. The ability to access the internet via mobile phones promises to extend the benefits of the internet to people who do not have access to desktop computers and fixed line internet connections. The mobile internet is also allowing people to create, share and access information in new and exciting ways. As mobile phones are portable, mobile internet can provide ubiquitous and constant access to the internet. People are able to search for information when they need to without waiting to reach a fixed line connection. They are also able to upload and share content almost instantaneously, allowing people to discuss and document events and experiences in real time as they unfold.

This paper examines the implications of the ongoing evolution and spread of the mobile internet[2] from a human rights perspective. It begins by sketching out the dimensions of a human rights approach to communications, providing a broad outline of what policy and regulation of the mobile internet should aim to achieve. It then moves on to examine some of the ways in which the mobile internet is helping to fulfil our human rights and freedoms. It uses examples from citizen journalism and crowdsourcing[3] applications to illustrate the new potential that the mobile internet brings for empowering citizens. The paper then explores some of the challenges that need to be addressed in order to harness the full potential of the mobile internet for universal human rights and empowerment.

The issues and concepts introduced in this paper are explored in further depth in two separate accompanying papers. One, by Russell Southwood, examines challenges and opportunities for advancing the capacity of the mobile internet to support human rights through policy and regulation, with a focus on media policy. The second, by Alex Comninos, explores the role that user- generated content and citizen communication can play in processes of political change, focusing on the 2010-11 citizen movements in the Middle East and North Africa.

2. What is a human rights approach to communication?

In a human rights approach to communication, the primary goal of regulation and policy should be to fulfil human rights. Within the international human rights framework, there are a number of rights that are affected by our access to and use of different types of communication media. Freedom of expression is the most obvious of these, including the right to seek, receive and impart information and ideas. Other human rights are facilitated or affected by our ability to communicate, including rights to education, an adequate standard of living, to associate freely with others, to participate in government, to participate in cultural life, and to enjoy the benefits of scientific advancement. As well as comprising a set of moral and legal standards, the international human

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[2]The term "mobile internet" is used in this paper to refer specifically to internet access via mobile phones. Such access may be across mobile phone networks, or other wireless connections such as Wi-Fi and WiMAX. In this paper, "mobile internet" does not encompass wireless internet access via devices other than mobile phones, such as laptop computers and tablets.

[3]The use of digital technologies to harness the value of combined knowledge and ideas from geographically dispersed people.

rights framework[4] can also be used as a tool for making policy decisions as it contains guidelines and principles to help us balance different rights against each other, and to balance the public interest with individual rights.

Within human rights approaches to public policy, human rights are not only end goals in themselves, but are also part and parcel of the entitlements and capabilities that we need in order to choose and live the life that we want to.[5] The free flow of information and ideas plays a particularly important role in helping us to control our own lives as it enables us to participate more effectively in decision- making processes that affect us. It does this through enhancing our ability to make informed decisions, improving our access to knowledge, and helping us to make our voices heard by political leaders and other power holders. Media and technology should therefore be accessible to all, and function in ways that empower citizens to participate in public debate and decision- making, and control their own lives.

In short, policy, regulation and legislation should aim to produce media and communications environments in which:

- Everyone's human rights are protected from violation. For example, communications should be free from censorship and surveillance that violates rights to free expression and privacy.
- Everyone's human rights are positively fulfilled. For example, communications are not only free from censorship, but people also have the capacities that they need to seek different forms of knowledge and express themselves effectively in the public sphere.
- Everyone is empowered to control their own lives through having meaningful opportunities to access to knowledge, develop their livelihoods, participate in the public sphere, and make their voices heard by political and other leaders.
- All people have equal ability to appropriate and innovate with communications media and technologies, adapting them to meet their own needs.

The remainder of this paper explores what these dimensions of a rights-based communications environment mean in the context of a mobile internet. The focus is on the final three dimensions, with analysis centring on the opportunities that the mobile internet is presenting for human rights and human empowerment, and the hurdles that need to be overcome in order to harness these opportunities. The first dimension – protection from violation of rights – is addressed where relevant in this paper, but is explored in greater depth in the accompanying papers by Russell Southwood and Alex Comninos.

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[4]This includes the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights, and subsequent international covenants, treaties, declarations and jurisprudence.

[5]This approach follows Amartya Sen Development as Freedom (Oxford: Oxford University Press, 1999).

3. The empowering potential of the mobile internet

There are countless examples emerging across the world of people using the mobile internet to express themselves, access and share information, and participate in public debate and politics. This section explores two broad categories of such participation – citizen journalism and peer information sharing, and enhancing the power of knowledge and communication through crowdsourcing.

Rather than focusing solely on the mobile internet, this section considers the interrelationship between the mobile phone, the internet and other communications technologies. This is because, on the whole, communications technologies are most powerful when they operate in synergy with each other, maximising the benefits offered by different media and modes of access, and combining them in order to achieve greater impact. Our analysis of the impacts that the mobile internet is having on society should therefore not exclude cases in which mobile phones not directly connected to the internet are helping to increase the impact of internet technologies, and bring their benefits to a wider range of people. In both of the examples below, interconnections between SMS, MMS (multimedia messaging service), voice and the fixed line internet are helping to enhance the communications power of citizens. The mobile internet is increasingly being used alongside these other technologies, serving to enhance the overall power of the communications systems as a whole.

a. Citizen journalism and peer to peer information sharing

The digital ecosystem of the internet and mobile phones is helping to enhance opportunities for citizens to create and share information, providing them with tools and platforms to report and discuss public issues directly without mediation by mainstream media outlets. In many cases, citizen journalism platforms have emerged in response to the absence of independent or public interest journalism in the mainstream media, whether radio, television or internet. For example, SeenReport[6] is a web-based citizen journalism platform that emerged in response to the 2007 media blackout in Pakistan. Some of the most powerful citizen media platforms allow people to file stories and reports via a range of communication platforms. SeenReport accepts reports via SMS, MMS and email, automatically uploading them onto the web and disseminating headlines via Twitter and Facebook.

Whilst the mobile internet is not essential for making systems like this work, it inevitably has the potential to make them more powerful. For example, mobile phones with cameras allow citizens to capture visual information and report on events. Photographs and videos can then be shared by MMS, or uploaded onto the internet when the person is able to get to a fixed line connection. However, if the phone is connected to the mobile internet, they can upload the images immediately, allowing them to report on developments in real time, often resulting in timelier reporting and faster response to the issue.

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[6]For more information see Melissa Ulbricht "SeenReport and Citizen Journalism in Pakistan" (Mobileactive.org. 1 September 2010) http://mobileactive.org/case-studies/if-you-build-it-they-will-come-seenreport-and-mobile-citizen-journalism-pakistan

One advantage of citizen journalism initiatives that combine a range of communication platforms is that they have the potential to reach a much broader range of people than the internet alone, helping those at the bottom of the pyramid of communications power to participate in the creation and sharing of content. Of particular note are systems that combine voice and data, allowing people to both file and access citizen journalism reports via mobile phones. Examples include CGNet Swara in Chhattisgarh, India[7] and the FreedomFone system developed and used by the civil society organisation Kubatana in Zimbabwe.[8] Both systems recognise that many citizens in poor and marginalised communities do not have internet access, and many are also unable to read or write. The mobile phone is therefore a powerful medium through which people can contribute stories through dialling into a system to record their message in their mother tongue, and also listen to items posted by other people. News items and stories are stored and administered on a fixed line computer server, which is also used to send SMS alerts to subscribers about new material. In addition to being available via the voice operated system, stories are also available via the web and are distributed by email, from which they have been picked up by the mainstream media on a number of occasions.

b. Crowdsourcing

Crowdsourcing is the use of digital technologies to harness the value of combined knowledge and ideas from geographically dispersed people. Ushahidi[9] is one of the most famous examples of how mobile phones can enhance the power and impact of crowdsourcing. This is a software platform that allows people to report incidents and events that they have seen or experienced relating to a specific issue. The software processes reports that it receives and logs them in a database. The database is linked to a map of the area in which incidents are occurring, allowing users to see how events are unfolding and to analyse geographical and temporal trends. The system allows people to log reports via a website, email, Twitter, SMS or MMS.

Ushahidi is an example of how open and adaptable technology can be appropriated by citizens to meet particular needs. The system was originally developed by a group of Kenyan citizens who were frustrated by the lack of accurate and timely coverage of the political crisis following Kenya's 2007 elections, and who recognised how powerful it would be if people were able to log cases of violence and other incidents that they were experiencing themselves. The experiment was a success, with 45,000 users of the site recorded during the crisis. Ushahidi provided journalists, citizens and state actors with verified information about the crisis as it unfolded, and helped to provide a public window onto human rights abuses in order to help reduce impunity.

The Ushahidi system is free and open source. It is available for anyone to download, use and adapt for their own purposes, and is being continually updated and developed to make it more accurate and powerful. The system has been used to meet a wide range of needs by different people across the world. For example, in Egypt, the system was used to create a "harrassmap" -an online map of incidents of harassment suffered by women on city streets. This initiative attracted public

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[7]http://cgnetswara.org/

[8]http://www.freedomfone.org/

[9]http://www.ushahidi.com

attention, resulting in reporting in the mainstream media of what had previously been considered to be a taboo subject. Draft legislation for improved response and protection of women was subsequently introduced in parliament, something that many people had previously thought would never happen.

The mobile internet is enhancing the power of Ushahidi, allowing people to not only report information more easily, but also to access the website in order to see what experiences other people are having in the same neighbourhood. Ushahidi has recently released smartphone applications (apps), further increasing the compatibility and usability of the system with the mobile internet. As Ushahidi app developers state:

"The Ushahidi mobile apps play a crucial role for gathering incident reports for a number of reasons. One, GPS-enabled devices can gather exact latitude and longitude helping provide an accurate incident location. Two, camera-phones allow the user to take photos on the spot of the incident. Three, 3G-enabled devices can upload the incident report as they happen, which is critical during times of crisis. Four, when internet is not available, multiple reports can still be collected and uploaded at a later time when the device is connected."[10]

4. Challenges for advancing human rights and empowerment through the mobile internet

The discussion so far has explored some of the ways in which the mobile internet is helping to enhance human rights and empowerment through expanding opportunities for people to create and share content, and participate actively in the public sphere. However, the mobile internet is not a silver bullet or straightforward solution for achieving universal and meaningful digital inclusion. This section provides an overview of some of the challenges that need to be overcome if we are to harness the potential of the mobile internet to increase people's capacities to control and improve their own lives. Six main issue areas are discussed: the affordability of the mobile internet; usability of hardware and software; people's capacity to create and access relevant content; architecture of the mobile internet; persistence of social inequality; and respect for identity and culture.

Wherever possible, these issues are explored from the perspective of people who are having their first and/or only experience of the internet via mobile phones, as is the case for increasing numbers of people across the world. There are currently approximately 14 million mobile-only internet users in the world, a figure that is expected to grow 56-fold to 788 million over the next 5 years as the mobile internet becomes more accessible to larger numbers of people than fixed line connections.[11] However, discussion of the potential that the mobile internet has for expanding human rights often takes place amongst people who have extensive experience of using the fixed line internet, are able to complement mobile internet use with fixed line connections, and whose knowledge and skills have developed in line with the evolution and popularisation of internet

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[10]Dale "Ushahidi iOS" (blog,ushahidi.com, 3 January 2011)
http://blog.ushahidi.com/index.php/2011/01/03/ushahidi-ios/

[11]Cisco Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010–2015 (San Jose: Cisco, 2011) www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.html

technologies. It is therefore important that we do not make assumptions about the nature and potential of the mobile internet, or about the capacities and preferences of mobile-primary and mobile-only internet users.[12]

a. Affordability

Costs of accessing the mobile internet are still prohibitively high for the majority of people living in poor and marginalised communities across the world. This is a major reason why mobile internet subscriptions remain relatively low in developing countries, estimated to cover 38.7% of the population in high income countries compared to just 3% in developing countries.[13] However, the mobile internet has become increasingly affordable in recent years, and there are signs that this trend will continue as mobile operators start to use mobile broadband to differentiate themselves in crowded markets.[14] Handset manufacturers and mobile operators are currently competing with each other to produce and market low cost handsets with data connectivity and web browsing. In a number of African countries, data enabled phones are falling to the price range of around USD 20-25. The cost of smartphones is also falling -for example with an Android-based phone now available for around USD 100- although still out of the price range of around two thirds of people in most countries in the region.[15]

Data charges for using the mobile internet are also falling across the world. A research study[16] in South Africa found that one of the reasons behind the popularity of the mobile social networking application MXit is that it is cheaper for communicating with friends than voice calls or SMS (short message service, also known as text messaging). Many people migrate from MXit to the wider mobile and even fixed line web, indicating that attractive, low cost, socially oriented mobile applications can help to raise internet literacy and experimentation. At the time of the study in 2009, most of the mobile web users covered by the study were paying for the mobile internet per byte of datatransmitted. The researchers found that such pricing models affect people's experience and use of the mobile internet, for example with people using search engines to access targeted information quickly. Pricing plans that encourage people to engage in more open browsing of information on the web might result in people accessing a wider range of more diverse content. There are some positive trends in this respect, for example with mobile providers in a number of African countries competing with each other through providing attractive bundles of services to

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[12]For further discussion of mobile-only and mobile-primary internet use, see Jonathan Donner and Shikoh Gitau "New Paths: Exploring Mobile-Only and Mobile-Primary Internet Use in South Africa" (Paper submitted to the workshop on "Africa Perspective on the Role of Mobile Technologies in Fostering Social Development", Maputo, 1-2 April 2009).

[13]International Telecommunication Union Measuring the Information society (Geneva: ITU, 2010) http://www.itu.int/ITU-D/ict/publications/idi/2010/Material/MIS_2010_without_annex_4-e.pdf

[14]Johan Hellstrom The innovative use of mobile applications in East Africa

[15]Niti Bhan and Muchiri Nyaggah "Mobile in Africa: From SMS to Android" (Goinvo.com, 16 March 2011) www.goinvo.com/mobile-in-africa-from-sms-to-android/

[16]Jonathan Donner and Shikoh Gitau "New Paths: Exploring Mobile-Only and Mobile-Primary Internet Use in South Africa".

both high and low end users.[17] Prepaid bundles of data are starting to replace per bit data charges, thereby increasing the predictability of costs which is important for low-income users.[18]

However, whilst costs are coming down, they are not falling nearly fast enough. Whilst 2G and 3G connectivity is improving, high prices, often stemming from licensing fees and competition issues, are preventing many people from using the services that are available. There is an urgent need for these issues to be addressed through communications policy and strategy.

b. Usability of hardware and software

People are more likely to use communications technologies if they are intuitive to use. A study into the experiences of a small group of first-time internet users accessing the mobile internet via their own handsets in South Africa has identified a number of barriers that may be preventing more rapid expansion of mobile internet use amongst people with limited or no experience of using the internet.[19] Participants in the study had difficulties in adjusting their handset settings so that they could use the internet due to the complexity of procedures and instructions. Access to mobile internet functions and browsers on the handsets were found not to be intuitive and assumed too high a level of knowledge of internet technologies, especially for first time users. Participants also found that many of the services that they wanted to access required them to register for accounts or passwords via a computer or versions of their websites that have not been formatted to be easy to use via mobile phones. For people who do not have access to computers and who have limited experience of the internet, such difficulties present significant hurdles and disincentives to persist with mobile internet experimentation and exploration.

Research suggests that if barriers such as these are overcome, first time internet users are often more comfortable accessing the internet via their mobile phones rather than desktop computers. For example, a further South African study[20] found that mobile phone users who had migrated to the mobile web had done so at least in part because of their familiarity with mobile handsets. In contrast to their mobile phones, a number of participants perceived of computers as being complex and time-consuming to learn how to use. One even commented that it was easier to type using their phone keypad rather than a "qwerty" keyboard. Research amongst mobile internet users in urban Kenya found that the mobile phone is increasingly viewed as a multi-functional device, with internet services being highly attractive and valuable to users.[21] Fixed-line, desktop computer access may offer more opportunities than the mobile internet for people to create and access greater volumes of content as they have greater data processing capabilities, connection speeds

[17]Erik Hersman "Snapshot: Mobile data costs in East Africa" (whitafrican.com, October 28 2010) http://whiteafrican.com/2010/10/28/snapshot-mobile-data-costs-in-east-africa/

[18]Ibid; Stephane Boyera Mobile Web for Social Development Roadmap (W3C Interest Group on MW4D, 2009) www.w3.org/TR/2009/NOTE-mw4d-roadmap-20091208/

[19]Shikoh Gitau, Gary Marsden and Jonathan Donner "After Access – Challenges Facing Mobile-Only Internet Users in the Developing World" (Paper presented at CHI 2010: HCI and the Developing World, Atlanta, 10-15 April 2010). http://research.microsoft.com/apps/pubs/default.aspx?id=122707

[20]Jonathan Donner and Shikoh Gitau "New Paths: Exploring Mobile-Only and Mobile-Primary Internet Use in South Africa".

[21]David Souter "Mobile internet usage and demand in Kenya: The experience of early adopters" in Vodafone *Making Broadband Accessible for All* (London: Vodafone Group, 2011).

and screen size. However, we should not make assumptions about the limitations of the mobile internet based on our experiences of fixed- line connections. Nor should we assume that people will automatically use desktop computers rather than mobile phones if they have access to them.

c. Capacities to create and access relevant content

Easy access to relevant and useful content is critical, both for driving uptake of the mobile internet and for ensuring that people can find information that they need to build their knowledge and participate effectively in public life. The lack of content formatted specifically for mobile handsets has been a significant hurdle until recently. However, the development of browsers that permit content from the open internet to be viewed on mobile handsets more easily is helping to enhance mobile access to content. The popularity and use of the mobile web browser Opera Mini is growing across the world because it enhances access to the open web through compressing data and effectively scaling full websites so that they are usable via mobile handsets. Such systems may be preferable to content which is specifically formatted for mobile phones as they help to ensure that mobile internet users can access and use exactly the same content and platforms as those using desktop computers and fixed line connections, thereby maintaining the integrity and interconnectivity of the internet.

The content and applications of the web are thus becoming more accessible to mobile internet users. However, the problem remains that most of the web's content is targeted at, and produced by, people in affluent societies. A study in Kenya found that mobile internet users are primarily accessing international news and services, often because of the limited availability of local content in comparison to international content, because local news outlets have not formatted content to be accessible via mobile handsets, because local content is not as easy to licence and because users feel local platforms may not offer reliable access to information over the long term.[22] The availability of local language keyboards, applications and content is a crucial factor affecting the usability and relevance of the internet for first time, mobile-only internet users. Whilst the proportion of internet content that is being published and accessed in different languages on the open web is difficult to assess, analysts believe that English and Chinese content far outweighs other languages. Content and services available for use in vernacular languages are minimal.

If the mobile internet is simply allowing people to access content produced by people in other communities, rather than to create and share it themselves, it is only having a limited impact on people's ability to participate in local political and public life. This points towards a need for positive steps to be taken to encourage and provide enabling environments for the development of relevant, local and user- generated content. Small scale community media initiatives that are targeted at building the capacity of specific communities to access and publish content may help to address this problem. A number of projects have demonstrated the success of digital storytelling platforms that use mobile applications to support people to express themselves in their own language and on their own terms.[23] However, there are question marks over the scalability and

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[22]Eric Hersman "The potential of mobile web content in East Africa" in Vodafone Making Broadband Accessible for All (London: Vodafone Group, 2011).

[23]See for example Prabhas Pokharel "Mobile Voices: Developing a Citizen Media Platform" (Mobileactive.org, 20 January 2010) www.mobileactive.org/mobile-voices-part-i-development-process

sustainability of pilot or discrete development interventions in the field of internet capacity building. As local content and services are highly valued by citizens, there are opportunities for the private sector to invest in content in emerging mobile internet markets, with analysts suggesting that this is where real growth potential lies.[24] Governments could also help to drive mobile internet uptake and use. For example, through providing government sites and services easily accessible through mobile phones.[25]

Social networking is fast becoming the most popular use of the mobile internet, followed by video sharing.[26] The importance of the use of the mobile internet for social purposes should not be overlooked. Freedom of association and expression are also human rights, and the social use of the mobile internet can play an important role in helping to prise open democratic space and give people a sense of freedom and empowerment. Moreover, opportunities to connect to social networks are proving to be a major draw for people to start using mobile internet technology. Once people are communicating online and enhancing their understanding and capacities to use the internet they are in a much better position to appropriate technologies -using them in new and innovative ways to meet their own needs. Finally, mobile social networking, microblogging and content sharing have played significant roles in movements for social change across the world in recent years, facilitating broader-based social movements involving people who do not commonly engage in activism.

Whilst uptake of the mobile internet for social purposes is important, business models in the sector are naturally focused on services that will generate revenue rather than public interest access and use of the mobile internet. For example, Facebook recently struck deals with mobile operators in 50 countries to bundle a basic, low bandwidth version of Facebook free from data charges into their service packages.[27] This could be a positive development that will bring social networking capacities to more and more people and may help spur wider internet use. However, such models may encourage users to restrict themselves to lower cost applications and services, which in this case is a proprietary and commercially-oriented social networking site. Other applications and sites are placed at a distinct disadvantage and mobile-only and mobile-primary users have limited incentives to explore and innovate with the open web. Some mobile internet users are even technically restricted by their service providers to accessing certain limited "walled-gardens" of content.

It is important that a careful balance is struck between helping to expand access and uptake through low-cost packages that provide access to limited content and services, and fostering a mobile internet environment that provides maximal opportunities for access to knowledge, information and ideas. In short, there is a lack of consideration of pro-poor and human rights issues in current business and regulatory models for the mobile internet -an issue that requires further research and policy attention.[28]

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[24]Eric Hersman "The potential of mobile web content in East Africa"

[25]Ibid.

[26]Informa Mobile Internet Traffic: Analysing Global Usage Trends (London: Informa UK, 2010) http://media2.telecoms.com/downloads/mobile-internet-traffic-trends.pdf; David Souter "Mobile internet usage and demand in Kenya: The experience of early adopters"

[27]Johan Hellstrom The innovative use of mobile applications in East Africa

d. Architecture of the mobile internet

One factor that affects the capacity of the mobile internet to support the creation and sharing of a wide range of user- generated content is the nature of mobile internet networks and applications. The open internet, accessed primarily via personal desktop computers, has been described by one analyst[29] as "generative", in that it possesses certain characteristics that encourage innovation and generation of new technologies and applications. Part of this generativity is rooted in open hardware and software that allow users to modify and adapt equipment and applications so that they can do new things and meet different needs. From a content perspective, it is also rooted in platforms that allow people to collaboratively produce, refine and discuss information and ideas. Generativity is important within a human rights approach to communications as it enhances people's capacity to appropriate technology and use it to meet their self-defined needs.

There is a danger that an internet ecosystem based around the mobile phone would be less generative than one populated primarily by desktop computer users. Firstly, unlike personal computers (PC), mobile handsets are primarily closed, proprietary technologies that are difficult for people to adapt and programme for different uses. Secondly, many generative applications and platforms, most notably wikis and web browsing, are more difficult to set up and use via mobile handsets. Thirdly, as smartphones become an increasingly popular mode of accessing and using the mobile internet, the use of applications or "apps" is also increasing. Apps are designed to help users create or access specific pieces or types of information, and can help to increase the power of the internet for citizen communication (see for example section 4ii of this report on Ushahidi mobile apps). However, analysts[30] have expressed concern that apps are changing the way that people experience the internet, replacing open web browsing with applications that channel users to selected and narrowly defined sections of information or services. This could reduce the likelihood of people stumbling across interesting and niche content via open surfing, with user- generated content published by individuals and small organisations being particularly vulnerable.

It has yet to be seen whether these concerns are founded, and what impact app culture will have on user- generated content. However, there is a need for much better consideration of the issues from the perspective of first-time, mobile-only internet users who cannot complement their use of the mobile internet with desktop computers.

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[28]See the accompanying paper by Russell Southwood for discussion of the impact of different regulatory practices and models on the mobile internet.

[29]Jonathan Zittrain The Future of the Internet – and How to Stop It (London: Allen Lane, 2008). http://futureoftheinternet.org/

[30]Chris Anderson and Michael Wolfe "The Web is Dead, Long Live the Internet" (Wired Magazine, August 17 2010) www.wired.com/magazine/2010/08/ff_webrip/all/1

e. Social inequality

Affordable and useful mobile internet access does not automatically translate into widespread and effective use. The persistence of the digital exclusion of particular groups as a result of social and cultural inequality is particularly worrying. For example, in many households in communities across the world, access to digital technology is the preserve of men, with women often having to ask for permission to use mobile phones and the internet, and being monitored when they do so. The estimated global ratio of male to female users is currently 77% male to 23% female.[31] However, this is an improvement on the 88:22 ratio that was recorded in 2008, with female users growing at by around 575% over the past two years compared to only 233% for males. There are, however, significant differences between countries. South Africa has the highest percentage of female users in the world at 43.5%, whilst India has the fewest at just 4%. Physical and cognitive disability is another persistent fault line of digital inequality in countries across the world, with very little effort being made by policy makers and the private sector to ensure that people with disabilities can make full use of the mobile internet.

f. Identity and culture

Assumptions are often made that people will be keen to embrace digital communications technology if they have the capacities and means to do so. However, in some communities across the world, people are either fearful of the impact that the internet will have on their culture and traditions, or sceptical about the benefits that it could bring. The internet is perceived to pose a particular threat to cultures in which specialised or traditional knowledge plays a central and sacred role in community life and identity, where there are fears that knowledge might be corrupted or violated if shared.[32] However, it is very rarely a case of straightforward acceptance or rejection of digital technologies. Active research projects have demonstrated that digital technologies can be perceived to be of value in some contexts as they can help to preserve traditional knowledge and raise cultural awareness within wider society.[33]

We should be also be wary about making assumptions about the usefulness of mobile technologies, as underscored by a South African research study[34] into mobile applications designed to help digital storytelling amongst indigenous groups. Xhosa communities found that the applications were of limited use in practice as they could not capture the unmediated communication and techniques to manipulate space and time that are central to Xhosa oral texts. Perception and uses of technologies are enmeshed within society and culture, with each impacting on the other in subtle and complex ways. It is therefore important to understand the interrelationship between technology, expression

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[31] Opera Software State of the Mobile Web, July 2010 (Oslo: Opera, 2010) www.opera.com/smw/archive/

[32] See for example Jon Corbett and Tim Kulchyski "Anti-social computing: indigenous language, digital video and intellectual property" Participatory learning and Action 59 - Change at Hand: web 2.0 for Development IIED and CTA, June 2009 http://pubs.iied.org/G02840.html

[33] See for example Jon Corbett, Guy Singleton and Kado Muir "Web 2.0 for Aboriginal cultural survival" Participatory learning and Action 59 - Change at Hand: web 2.0 for Development IIED and CTA , June 2009 http://pubs.iied.org/G02843.html

[34] Nicola Bidwell, Thomas Reitmaier et al. "Designing with Mobile Digital Storytelling in Rural Africa" (Paper presented at CHI 2010: Storytellind, Atlanta, 10-15 April 2010).

and identity in specific cultural contexts if we are to take steps to expand human rights and empowerment via the mobile internet.

5. Conclusions

This paper has argued that the evolution and spread of the mobile internet presents exciting new opportunities for the effective implementation of human rights. It can expand people's capacities to create and share information and ideas and is allowing to improve access to the internet for people who cannot afford or do not have physical connections to the fixed- line internet. It is also making citizen-driven communication more powerful through providing instant and portable connectivity so that people can access and upload information whenever and wherever they need to. However, the paper has also stressed that the mobile internet will not necessarily provide a straightforward or unproblematic solution to problems of digital and political exclusion. If we are to foster the evolution of a universally empowering mobile internet, we will need to address a number of significant challenges relating to affordability, usability, relevant content, network and applications architecture, inequality and identity.

The internet and the content that it hosts need to be conceived of as public goods that are necessary for human rights, active citizenship and empowerment. Recognition of the importance of user- generated, locally relevant content needs to be incorporated into models of support for, and regulation of, both ICT infrastructure and media content. Whilst an increasing number of countries have ICT development strategies in place, these often focus on expanding access to technology and do not pay adequate consideration to issues around usability, active citizenship, culture and rights.

A key message that has emerged from the analysis in this paper is that there is a need for much more awareness and consideration of the fact that the vast majority of the world's internet users will soon be accessing the internet either solely or primarily via mobile phones. For most, the mobile internet will be their first experience of the internet. It is therefore crucial to ensure as far as possible that the mobile internet has as much empowering potential as its fixed- line and desktop computer counterparts. This means that people should be able to access the same tools and services via mobile phones as they can via fixed and computer connections, and have the same capacities and tools to create and share content. The characteristics of the fixed- line internet that have enabled it to grow into such a powerful medium for freedom of expression need to be protected in the mobile world, including principles of openness, interoperability and opportunities for user-driven innovation.

Finally, whilst an increasing proportion of the world's internet users are mobile-only or mobile-primary, this paper has argued that some of the most exciting examples of the mobile internet helping to empower citizens come from cases in which it is operating in synergy with other communications media. Moreover, whilst taking steps to ensure that the mobile internet is as empowering as fixed line and computer connections is important, mobile handsets[35] have

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[35]The evolution of powerful devices which combine the benefits of computer and mobile phone hardware, such as tablets and netbooks, may help to overcome some of these limitations for mobile internet users. However, these are still unaffordable for the majority of the world's population.

technological limitations in comparison to desktop computers and fixed line connectivity. Computers currently have better data storage capacity and more powerful data processing, possess bigger screens and better support for programming. At present, fixed line broadband connections tend to be faster and more reliable, capable of handling much greater volumes of traffic.

Whilst the mobile internet may help to overcome connectivity gaps in the short term, focus on mobile internet access must not undermine efforts to achieve universal access to desktop computers and advanced fixed-line fibre optic networks. Mobile, computer and fixed line access must be thought of as mutually compatible and synergistic technologies, to which all people should have access. The end goal should be the establishment of an interconnected global communications environment. Within this, all people should have equal and meaningful opportunities to use and appropriate communications media to meet their own needs, advance their livelihoods, exercise their rights, and participate in public life.

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