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IN AREAS OF LIMITED  
STATEHOOD

## Information and Communication Technologies in Areas of Limited Statehood

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Steven Livingston/Gregor Walter-Drop



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## Information and Communication Technologies in Areas of Limited Statehood

*Steven Livingston and Gregor Walter-Drop*

### **Abstract**

This paper analyzes the effects of information and communication technology (ICT) on governance where the state's ability to authoritatively implement and enforce political decisions is weak or functionally absent – areas of limited statehood (AoLS). How do ICTs influence the provision of collective goods in AoLS, especially in policy fields such as security, welfare and the environment? In addressing this question we focus on the emergence of ICT-enabled forms of steering. Virtual organizations such as Ushahidi and FrontlineSMS enable the coordination of collective goods without the same level of hierarchical structure historically associated with traditional forms of governance. The focus lies on quasi-organizational forms that rely on mass collaborative action across electronic networks. The consideration of these questions is supported by fieldwork in Africa in 2011, and on previous research in Afghanistan and various African countries in 2010. The paper concludes with some tentative hypotheses on the interconnection between ICT, statehood and governance.

### **Zusammenfassung**

Dieses Arbeitspapier analysiert die Effekte von Informations- und Kommunikationstechnologien (ICT) in Räumen begrenzter Staatlichkeit (RbS) mit Bezug auf Governance. Es geht dabei v.a. der Frage nach, wie ICTs die Bereitstellung kollektiver Güter insbesondere in den Politikfeldern Sicherheit, Wohlfahrt und Umwelt beeinflussen. Bei der Beantwortung dieser Frage konzentrieren wir uns auf die Entstehung neuer Steuerungsformen, die auf ICTs basieren. Virtuelle Organisationen wie Ushahidi oder FrontlineSMS beispielsweise ermöglichen die Erbringung kollektiver Güter auch ohne staatlich-hierarchische Strukturen, die in einem traditionellen Verständnis häufig als Voraussetzung von Governance betrachtet werden. Unser Fokus liegt somit auf Governance-Formen die auf kollektivem Handeln über elektronische Netzwerke basieren. Die Diskussion dieser Fragen wird durch die Ergebnisse von Forschungsaufenthalten illustriert, die in den Jahren 2010 und 2011 in Afghanistan und verschiedenen afrikanischen Staaten stattgefunden haben. Das Paper endet mit einigen vorläufigen Hypothesen zu der Verbindung von ICTs, Staatlichkeit und Governance.

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## 1. Introduction

When considering the effects of digital media on politics, scholars have tended to focus on technologies in areas with relatively consolidated state institutions, whether they being democratic or authoritarian in nature. As a result, research questions tend to cluster around ICT in relation to these institutions. For example, scholars have asked important questions about the changing nature of citizenship in a modern nation-state, the possibilities for more robust deliberative democracy, the changing nature of production and economic relations, Internet effects on electoral behavior and outcomes, and of course the role of technology in social change.

As important and interesting as these questions are, they overlook the fact that the ICT revolution has reached all parts of the world, including the non-OECD world where state institutions are often not fully consolidated in the Western sense. We use the term *areas of limited statehood* to describe geographical entities, policy fields or social groups for which states either cannot maintain a monopoly of force or experience significant problems with regard to rule-making, implementation and enforcement.

Different questions emerge when considering the effects of ICT on areas of limited statehood in particular for *governance*, i.e. the delivery of collective goods and services. Governance is conceptually distinct from the state, as we discuss below. Our paper thus asks the question: *What role can ICT-enabled collective action play in filling the governance void found in areas of limited statehood?* How do communities use ICT to meet the challenges of indiscriminant violence, disease, drought, famine, crime, and the other problems arising from deficient, non-responsive state institutions? Can ICT help to fill the gap between pressing human needs and some states' inability to meet them?

This topic is both empirically and theoretically largely uncharted territory. We thus hope to begin a new conversation by drawing out the contours of an exciting and vibrant new area of inquiry. We begin that project with a discussion of our theoretical framework centered around governance and statehood (section 2). We then turn to a brief description of the technological advances particularly relevant for areas of limited statehood (section 3) before we evaluate the hitherto central theoretical role of the state (section 4) and the current theories on new collective action (section 5). We then present some empirical examples for technologically enabled governance modalities in areas of limited statehood (section 6) and move to our first ideas about the theoretical implications (section 7).

## 2. Statehood and Governance

Our discussion of ICT is presented in the context of a debate about the nature of *governance*, and not just *government* or the *state*. Our analysis rests on important distinctions among these three concepts.

As a topic of scholarly interest, governance has moved to the forefront of social science research. A simple JSTOR search yields more than 3,200 scholarly articles on governance in journals from political science, public policy, and sociology, all published in the last five years. Yet despite – or perhaps because of this surge in interest – the contours of the topic are still soft and poorly defined. *Governance* is often confounded with *government*, which is also sometimes conflated with *statehood*.

We conceive of governance as conceptually independent of the state, allowing for an analysis of the relationship between the two. We define *governance* as *institutionalized modes of social coordination that aim to produce and implement binding rules or provide collective goods*. Such collective goods include security, economic welfare, education, public health, sustainable infrastructure, or a clean and safe environment. From this perspective, government by the state is only one modality of governance, a modality that – on a global scale – may be the exception, rather than the rule.

Many contributions to (Western) governance research take certain core elements of modern *statehood* for granted. These elements usually comprise authoritative rule (in the sense of Krasner's (1999) "domestic sovereignty") and/or the fundamental ability to implement and enforce political decisions. Often overlooked by traditional research is the fact that, outside the OECD world, these assumptions do not hold. In fact, seen in a broader context, Western-style consolidated statehood is both an historical and contemporary exception. Even today, in most developing or transition countries (uniting more than three quarters of the global population) state or government control over the use of force is, at best, tenuous and incomplete, and so is the ability to implement any policy or regulation. To be sure, even within the West we might find pockets of limited statehood (such as police no-go-areas in inner cities). Implementation problems might even be considered a universal condition. But there is a qualitative gap between Western states and their generally well-established institutions on the one hand, and the various challenges faced by their functional equivalents in non-Western states on the other hand.

However, "limited statehood" is a continuous variable, i.e. there is a world of difference between, say, Russia and Sudan. And yet, both experience problems with the monopoly of force and/or policy implementation and enforcement – albeit to varying degrees and in varying fields. It seems that many states marshal the capacity to deploy force but show less ability to provide for adequate nutrition, education, public safety, or economic development. *Limited statehood* thus refers to a condition where the state's ability to implement and enforce the monopoly of force and/or political decisions is deficient in certain territorial regions, certain policy areas, or for certain segments of the population.

When one ventures to the edges of Kinshasa in the Democratic Republic of the Congo or Kabul in Afghanistan one has reached the limits of the state's reach. Beyond the city borders lies a vast stretch of territory where the state is weak or altogether absent. In fact, in some places one does not have to venture from the capital to find little to no evidence of the state. Urban slums such as Kibera and Mathare in Nairobi offer examples of areas of limited statehood at the very heart of the territorial state. An area of limited statehood, however, might also refer to a policy

field or to a segment of the population rather than to a geographical entity. Examples include China's problems with environmental policy, India's inability to effectively control child labor, or Russia's inability to manage its vast territory.

However, limited, weak or even failing *statehood* does not necessarily translate into the absence of *governance*. Governance may simply take different forms, involving different actors and following different procedures than the Western, state-focused model implies. Governance can also work from below the state (be it by local self-governance, by NGOs or by business), it can work from above (by international governmental or non-governmental institutions) and it can take any form of collaboration with the state as it exists – even if it is very different from what we are familiar with in a Western context. Today, technologically enabled collective action may play an important role in such forms of governance. The collective goods of governance are usually delivered by collective action. Our hypothesis is that in the absence of strong state institutions, the availability of ICT makes a significant difference for the possibilities and forms of non-state collective action for the purposes of governance.

### 3. ICT in Areas of Limited Statehood

Situating our analysis in areas of limited statehood, rather than the OECD-world with its robust state institutions, allows us to expand the consideration of new media to digital technologies and applications that are most relevant to less developed regions. This includes mobile telephony (and mobile-based Internet access), remote sensing satellites, and geographical information systems (GIS). These are perhaps best thought of as nested technologies that create a “system of systems” array of capacities. For example, GIS and GPS constitute the foundational capacity for the use of mobile telephony in crowd-sourced event mapping platforms such as Ushahidi. Put differently, mobile phones are used to populate open source digital maps with markers of significant events or phenomena; much in the same way Google Maps marks locations of interest to users.

The most salient of these technologies have a different profile from those found in the more intensely studied regions in the Global North. Chief among them is mobile telephony. In 2000, almost three quarters of global mobile phone subscriptions were found in the developed world. By 2010 the proportions were reversed, resembling much more the actual distribution of the world population. By mid-2010, there were over five billion mobile phone subscribers around the globe. Just one year later, the global total reached 5.6 billion subscriptions.<sup>1</sup> In Africa alone, the proportion of mobile phone subscribers has increased tenfold during this time span and has reached well over a third of the entire population, and other regions of the less developed world consistently exhibit the highest growth rates (Livingston 2011). Africa has seen a 20 per-

<sup>1</sup> “Gartner Says Worldwide Mobile Connections Will Reach 5.6 Billion in 2011 as Mobile Data Services Revenue Totals \$314.7 Billion,” August 4, 2011. <http://www.gartner.com/it/page.jsp?id=1759714>. Accessed March 2, 2012.

cent rate of growth each year for the past five years, souring from 2 percent of the population in 2000 to 28 percent by the end of 2009.<sup>2</sup>

By the year 2015, Sub-Saharan Africa will have more people with mobile network access than with access to electricity at home, some 138 million people by 2015 (Rao 2011: 11). By 2020 there will be at least one SIM card for every person on the continent (Salz 2011). MTN, a leading provider of mobile telephony service, offers an example of this phenomenal growth. In 2010, it announced a 22 percent increase (116 million in 2009 to 141.6 million in 2010) in its subscriber base. Similarly, with the purchase of Zain in 2010, Bharti Airtel, the world's fifth largest telecommunications company, expanded its presence into fifteen African nations. With about 40 million subscribers on the continent in September 2010, Bharti planned to more than double the company's Africa business in thirty months. In South Africa, Ghana, Gabon and Kenya, there are already nearly as many SIM cards as there are people.

Although growth rates are slower, *Internet access* is also available to increasing proportions of the population. About 80 percent of global data transmission uses undersea cables. As of mid-2009, 40 percent of continental Africa was without a direct high-bandwidth cable connection. Satellite uplinks were used instead but at rates that were twenty times more expensive than bandwidth prices in the United States. New sub-sea cable systems alter that pricing structure, opening up new opportunities for the growth of high-speed Internet and better cellular telephony.

Leading-edge innovation centers are found now in various African cities. For example, Cape Town's "Silicon Cape" has company in Nairobi's "Silicon Savannah." iHub, a technology innovation center in Nairobi, is perhaps the most well known component of Nairobi's emerging strength.<sup>3</sup> Another is the Safaricom Academy, a joint venture between Safaricom and Strathmore University. It hosts the "Incubation Center," a technical and mentoring program for ICT entrepreneurs.<sup>4</sup> What is perhaps the most ambitious ICT project in Africa is Konza City, a "technology city" planned for development about 60 miles outside of Nairobi.<sup>5</sup> Google has also set up offices in several African countries and hired Ory Okolloh, the Kenyan lawyer and activist who sparked the creation of Ushahidi in 2008, as its director of Africa policy (Hopkins 2010).

Google has also reported record growth for its operations in sub-Saharan Africa, benefiting from 50 percent annual growth in search requests. Not surprisingly, 40 percent of the Google searches come from mobile phones. Videos viewed on YouTube, another Google service, are also

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2 Most Africans use prepaid SIM cards. This creates some ambiguity as to what these numbers mean. For example, one can have a mobile phone subscription without having a mobile phone; or one can have multiple mobile phones and multiple subscriptions; or one can have a subscription without any minutes, and therefore effectively be without a phone. See James/Versteeg 2007, and Harwood 2012.

3 For more about iHub, see <http://ihub.co.ke/pages/about.php>, and for CITI see <http://www.citi.org.za/about-citi.html>. For a more general discussion of IT innovation centers see Livingston 2011: 27. See also Ahmed/Nwankwo 2010.

4 About Safaricom Academy, <http://www.safaricomacademy.org/about.html>. Accessed March 9, 2012.

5 Konza Technology City, Summary April 2011, <http://www.doitinkenya.co.ke/pdf/Konza%20Summary%20Document.pdf>. Accessed March 9, 2012.



doubling each year. Google is not alone in its expansion in Africa. There were also approximately 10.5 million Facebook users there in 2010 (Rao 2011: 5). Twitter users in Africa have exploded in numbers. Portland Communications, an independent research firm, and Tweetminster, a social media data analytics firm, found that 11.5 million tweets originated from Africa during the last three months of 2011. Almost 60 percent of the tweets were sent from mobile devices.<sup>6</sup>

*Remote sensing satellites* are also important to areas of limited statehood. Since 1999 a fleet of commercial high-resolution remote sensing satellites have come on line. Public availability of data from high-resolution remote sensing satellites has empowered non-state actors with a technical capability that was once the exclusive preserve of a few powerful states. For example, the Satellite Sentinel Project uses high-resolution remote sensing images provided by DigitalGlobe, one of the premier remote-sensing firms, to monitor human rights violations in the Sudan. From about 420 miles in space, each satellite captures images of objects on the ground as small as a typical microwave oven. Where roads systems are rudimentary and populations scattered, the ability to see phenomena on the ground from space enables new forms of governance. It allows for an entirely new image of the world to emerge and creates new technical possibilities when combined with other technologies.

Another new politically significant capacity is found in widely available *geographical information systems* (GIS). In the West, scholars, technologists, and social critics grapple with the significance of GIS in terms of privacy, social media, marketing, and navigation. In areas of limited statehood GIS is particularly interesting in the context of crisis or event mapping – the use of crowdsourcing to populate significant events on a digital map in the context of a natural disaster or political event. People who are caught up in crises use mobile phones and other communication devices to share awareness of local circumstances with a central aggregating platform, such as Ushahidi.

The digital divide between the Global North and Global South has begun to narrow, as is evident in the data provided by the International Telecommunication Union's International Development Indicators (IDI) (ITU 2010: x). We are interested in how the growing reach of technology in areas of limited statehood affects collective action. Each of these technologies helps to change the information landscape across the planet, including the non-Western world where areas of limited statehood are most commonly found. By lowering information and collaboration costs, technologically enabled collective action and coordination possibly fill gaps in governance capacity left open by weak and inefficient state institutions.

The political significance of these technologies is found in their ability to deepen the capabilities for collective action. In the social science literature this is called "new collective action." Before we discuss this in further detail, we look at the role of the state in research on collective action.

<sup>6</sup> <http://allafrica.com/stories/201201260001.html>, Accessed July 30, 2012.

#### 4. ICT, Theory, and the State

Scholars studying digital technology and collective action have tended to focus on some parts of the globe while leaving the rest out of mind. There are two very good reasons for this. The first is rather obvious: North America and Europe are where key technologies were first located and where, even today, they are most heavily concentrated, at least in their most advanced forms. This means that the kinds of questions asked and the assumptions behind them tended to reflect the political and economic geography of the technology, as much as they did the inherent qualities of the technologies or their possible effects. Very different patterns of technological diffusion have (and are) occurring in Africa, Latin America, and parts of Asia.

Another important difference is found in the technologies themselves. In Africa and elsewhere in the developing world, mobile phones are far more common than are more costly computers. The other chief difference between the diffusion pattern in the West in the past twenty years and the more recent patterns in the non-Western world is found in the role of the state. Unlike in the West, the state often plays a less prominent role with regard to governance.

In the West, the state has been both an enabler of technological development and a conceptual anchor for social science theory building. As an enabler of technological development, one need only recall that ARPANET was the product of research commissioned and supported by the United States Defense Department. Bell Labs, Sarnoff Labs, IBM, and other technology innovators pursued projects that were directly connected to state objectives, especially concerning national defense. It was an era of big science funded by government research initiatives (Wagner 2008; Arthur 2009). The connection between the state and technological development is not nearly as strong in much of Africa today, especially after telecommunications market liberalization schemes began to take hold beginning in the last decade of the 20th century (Petrazzini 1995).<sup>7</sup> The source of much of the innovation seen in Africa today comes from the private sector, sometimes in partnership with non-profits such as iHub in Nairobi.

Of greater importance to our present argument is the second role of the state. The state serves as a conceptual element of social science theory building concerning collective action. Either implicitly or explicitly, it is at the center of paradigmatic statements concerning political communication and collective action. This is of course reasonable and understandable, given the geographical focus of the research. The theory, like the technology, is rooted in the North American and European political experience. So as to underscore the difference between our current project and past research, we will take a moment to clarify the point.

In different ways, various tributaries of collective action and social movement theory came together around a shared assumption concerning the centrality of the state. For the mainstream theories of contentious politics, nation states serve as preconditions for social movement for-

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<sup>7</sup> See also Harsch 2000. As with so many other things, this claim is less true of South Africa where the state has been more involved in scientific pursuits, including nuclear research and development.

mation and collective action. A major influence on this thinking has been the important work of Charles Tilly, who argued in his 1978 classic *From Mobilization to Revolution* that collective action interacts with a set of necessary conditions for mobilization and chief among them was the rise of the consolidated national state (Tilly 1978: ch. 3, 4, and 6; Tarrow 2010: 18).

In *The New Transnational Activism*, Tarrow (2005) underscores the centrality of the state. The state emerged in the 18th and 19th centuries as both a handmaiden to capitalism and its sometimes-reluctant regulator. It was necessary for war, preservation of domestic security and the production of other public goods, and for extracting the taxes that would pay for it all. “Under this umbrella, national social movements emerged around the fulcrum of the nation-state.” (Tarrow 2010: 18). It is only in the formation of the state that national expression of social movement protests could take root. Different kinds of states, Tilly tells us, call for different research foci. Some theories concern effects of ICT on *democratic* practices and state institutional structures in an attempt to deduce net effects.<sup>8</sup> In other cases, the focus is on the potential effects of ICT on authoritarian states (Howard 2010; Morozov 2011).

Several theoretical traditions – from American political communication research to collective action and social movement theory, to international relations theory – are, appropriately, situated in the context of a political structure dominated by strong states and other hierarchical institutional structures, such as political parties, firms, and even traditional NGOs.

What is missing is a theoretical framework for thinking about places in the world where *ICT is common but stabilized states are not*. This constitutes a new techno-political geography. For the first time, digital technology with the potential for significant governance effects is found where states are absent. The traditional tie between strong states and technology is weak, if not absent. We begin that discussion by drawing on the innovative theoretical work about collective action in the absence of hierarchical, bureaucratic organizations. While much of this work still assumes a strong state and corporations, we adapt the conversation to a different set of circumstances. In the *absence* of the state, the ultimate hierarchical organization, can technologically enabled groups organize to provide basic public goods?

## 5. New Collective Action

With the rapid diffusion of digital technology in the West at the turn of the century, political scientists and sociologists began seeing interesting new patterns in social protest movements. Groups and interests that, according to traditional models of collective action, would not be present began appearing at anti-globalization protests across Europe and the United States. Among the many things that were interesting about these new groups was their under-resourced, yet still sizeable, presence at various protest actions. According to the assumptions of collective action, this wasn't supposed to happen.

<sup>8</sup> See Bimber 2003; Hindman 2009; Bennett 2003 and 2005; Andrews/Edwards 2004.

Collective action is affected by the constraints and opportunities created by the relative abundance of information and the ability to communicate it. Max Weber also spoke of the relationship between the kinds of organizations and institutions that society needs to accomplish its goals and the nature of that society's information infrastructure. Weber said that the reason for bureaucracy, the reason for large hierarchical institutions, is found in the nature of information. Where information is hard to gather, manage, and distribute, one is more likely to find specialized command-and-control hierarchical institutions – bureaucracies – to manage it. The classical Weberian conception of bureaucracy is a “body of arrangements for organizing information and communication into a system for rational decision making and administration.” (Bimber 2003: 95) Weber's argument assumes that information is inchoate and inherently difficult to organize, making it costly to assimilate and manage over time. “Locating the right information, storing it, and making it available within an organization at the right time and place to people with the skill or expertise to use it is a difficult task.” (Bimber 2003: 95)

Resource mobilization theory in the 1970s and 80s argued along these lines when claiming that collective action occurs only where and when adequate resources are available (McAdam 1982). The resource mobilization perspective “maintained that professionalized organizations that had full time, paid leadership and a nonexistent or paper membership base were central to movement mobilization, stability, and maturation.” (Schaefer Caniglia/Carmin 2005)

Yet mostly leaderless and loosely organized groups – if organized at all relative to expected requirements – were clearly present as early as the anti-WTO protests in Seattle. The key explanatory variable seemed to be the information characteristics of the environment. Whether we speak of “post-bureaucratic politics,” (Bimber 2003) or “organizing without organizations,” (Shirky 2008) or “leveraging affordance,” (Earl/Kimport 2011) the conclusions are generally the same: the information environment affects the nature of organizations and the opportunities and constraints they face in collective action.

Advances in various information technologies lowers the cost of gathering, creating, storing, retrieving and distributing information. That in turn creates opportunities for groups and identities to coalesce and coordinate with much lower costs than would have been the case in an earlier age.

We take this same information dynamic and apply it to governance in areas of limited statehood. Our thesis is the same as Bimber's when, nearly a decade ago, he wrote of information abundance and postbureaucratic forms of politics.

“To the extent that the central functions of these private institutions involve the collection, management, or distribution of information under circumstances where information has been costly and asymmetrically distributed, the contemporary information revolution has the capacity to alter organizational structures. The result is a diminished role on many fronts for traditional organizations in politics.” (Bimber 2003: 21-22)

We extend this possibility to our consideration of areas of limited statehood in the contemporary information environment. Rather than relying on information abundance and postbureaucratic forms of organization to consider the expanded capacity of new forms of collective action put to the articulation and organization of demands on states and corporations, we consider information abundance and new governance modalities in the pursuit of basic public goods. The question thus is whether *non-hierarchical, technologically enabled organizational morphologies can create public goods (such as security) without the state?*

Information abundance through a variety of ICT-based effects changes almost everything we know about organizations, collective action, and the collection and distribution of information. The impediments to collective action involve costs in terms of the time, money, and expertise required to gain an understanding of what is needed, approaches to achieving it, who can help you achieve it, and so forth. Remove the encumbrances of scarcity and add the element of fluid distribution of information over electronic networks and one sees a new array of opportunities and constraints for scalable political action, including the provision of public goods. Abundant information leads to administrative structures – to the degree they exist – that are fluid, adaptable to shifting constraints and opportunities on a global scale, and open to rapidly formed and dissolved coalitions, movements, and networks. Reliance on vertical organizational structures is reduced and boundaries between core organizational elements and other organizations are more permeable. Institutions of all types become flatter, less hierarchical, fluid, open to rapid response to new inputs, and scalable from local to global phenomena. Complex and expensive organizations are not needed to the same extent, as they once were, if they are needed at all, where the information environment is rich with technologically enabled connections. That is because coordination of complex movements is done via electronic networks, rather than hierarchical chain of command systems.

## 6. Examples of Networked Governance Modalities

We lack the space and time to provide anything more than a few illustrative examples of technologically enabled governance modalities in action. The basic facts of each are the same: government capacities are weak or missing. In that vacuum technologically enabled governance (or collective action) modalities fill the void.

(1) *Banking* and even basic currency liquidity is possible only where the state is capable of providing elemental structural context. This is especially true in today's global economy. But even at an elementary level, one not approaching international currency exchange protocols on the use of credit cards and ATM cards, the state is essential to banking. For example, without basic infrastructure – roads, electrical grids, communication lines, police – banking is impossible. Furthermore, without proper regulation, oversight, and audits by independent agencies, banking is impossible. Without banking, currency liquidity is challenged. Instead, barter systems are relied on for basic transactions. Furthermore, wealth is stored and accumulated in traditional ways that make them vulnerable. For example, without currency and banking, pastoralist

societies continue to concentrate excess value in cattle, making the stored wealth vulnerable to disease, draught, and theft.<sup>9</sup> In Kenya, M-Pesa, a mobile phone-based cash system offered by Safaricom, was commercially launched in 2007. *Pesa* is money or cash in Swahili. Users can deposit and withdraw cash from authorized M-Pesa agents, make person-to-person money transfers, and purchase mobile phone airtime. Mobiles in the Global South are used most often as “pay as you go systems”, rather than on monthly contracts, as is often the case in the Global North. M-Pesa is used in Kenya, Tanzania, and Afghanistan. By May 2009, it had 2 million daily transactions in Kenya alone. As of November 2011, M-Pesa had over 14 million subscribers and well over 28,000 agents across the country.<sup>10</sup> In Tanzania, M-Pesa had about 9 million subscribers in 2012.<sup>11</sup> It is used to buy prenatal care for pregnant women, pay for school and supplies, buy commodities, and store excess wealth. Directly and indirectly, M-Pesa, built on the recent introduction of mobile telephony in Africa, is a new kind of organization, one that exists in the capacity of technologically enabled networks. Following the success of M-Pesa, similar systems have been developed by mobile service providers across the continent. MTN, Zain, Vodacom Tanzania, and Rwandatel have all followed suit.

(2) *Ushahidi* offers an example of a network-based crowdsourcing platform that can be adapted to a number of situations. It emerged in 2008 in the midst of the post-election violence in Kenya. Kenyan bloggers and technologists created a mash-up of open source geographical information systems mapping to record and aggregate various kinds of violence. Since then, Ushahidi has been used in a wide variety of circumstances, from monitoring wildfires in Russia in 2010 to tracking human needs in Haiti after the earthquake in 2010. Nearly 40,000 independent reports were sent to the Ushahidi Haiti Project of which nearly 4,000 distinct events were plotted on the GIS platform. Ushahidi has also been used to track anti-immigrant violence in South Africa in 2008 as well as violence in the Democratic Republic of Congo (Marwaha 2008). It even has been used to track pharmacy stocks in several East African countries (Banks 2009). And it was also used to monitor the 2011 elections in Nigeria and called Reclaimnaija.<sup>12</sup>

(3) *FrontlineSMS* is an open-source software that is used to collect and distribute information on standard mobile phones using text messages. It does not require an Internet connection. It allows users to connect a range of mobile devices to a computer to send and receive SMS text messages. If Internet access is available, FrontlineSMS can be connected to online SMS services and set up to feed incoming messages to other web or e-mail services. It has been used in a variety of circumstances, all characterized by the remoteness of the users, a lack of state ser-

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9 “South Sudan: Cattle Rustling Becomes Increasingly Violent,” Institute for Security Studies, AllAfrica, February 1, 2012. <http://allafrica.com/stories/201202011223.html>. Accessed March 15, 2012.

10 “M-Pesa Transactions Surpass Western Union, Moves Across the Globe,” Saturday Nation, October 20, 2011. <http://www.nation.co.ke/business/news/-/1006/1258864/-/4hyt6qz/-/index.html>. Accessed March 15, 2012.

11 “Tanzania: Vodacom Upgrades M-Pesa System,” AllAfrica, January 16, 2012. <http://allafrica.com/stories/201201170470.html>. Accessed March 15, 2012.

12 “Using the Ushahidi Platform to Monitor the Nigeria Elections 2011,” Ushahidi, <http://blog.ushahidi.com/index.php/2011/03/30/using-the-ushahidi-platform-to-monitor-the-nigeria-elections-2011/>. Accessed March 15, 2012.

vices, and an otherwise isolated and scattered population. In the absence of a state agricultural assistance service, common in the United States and Europe, a variety of NGOs have established farmer information services. The Grameen Foundation's Community Knowledge Workers Initiative, for example, provides farmers with information about crops, international market prices, and other services via mobile phones.<sup>13</sup>

(4) A similar technology, *RapidSMS*, was developed as a communication tool for UNICEF's Global Operations Center as a way to contact its teams in the field via SMS. With the proper equipment, it can record and store audio voice messages that can then be redistributed by community radio stations. One example of RapidSMS is the Jokko Initiative. It allows users to send an SMS text message to an access portal that then forwards the message to all phone numbers belonging to the network. In Somalia, a RapidSMS project for emergency response monitoring was set up. In Kenya, it is being used to address mortality rates of children under five years of age at a community level. "This initiative brings diagnoses, referrals and treatment out of the clinics and into the communities." In Nigeria, RapidSMS was piloted in the first phase of a 70 million "long lasting insecticide-treated nets" distribution campaign.<sup>14</sup> Healthcare projects also rely on mobile telephony.

(5) In 2011, the World Health Organization released a major study on the use of *mobile technologies* in less developed regions. It concluded, "The use of mobile and wireless technologies to support the achievement of health objectives (mHealth) has the potential to transform the face of health service delivery across the globe." The report continued:

"A powerful combination of factors is driving this change. These include rapid advances in mobile technologies and applications, a rise in new opportunities for the integration of mobile health into existing eHealth services, and the continued growth in coverage of mobile cellular networks." (WHO 2011)

The head of WHO's Global Observatory for eHealth in Geneva estimates that mobile health services are now found in up to 40 African countries. "The momentum is huge. What is happening is important. Millions of people in Africa still do not have access to any healthcare. With mobile technology they can at least have some." (Smith 2011) TxtAlert, for example, is a mobile tool that sends unique, automated SMS reminders to patients on medication for chronic diseases. Patients can also "ping" their healthcare provider. Pinging is an unconnected call used commonly in prepaid mobile systems to communicate simple messages, such as "Call me because I'm out of minutes and cannot call you." There are other ways of overcoming call charges that might get in the way of mobile-based healthcare. In Ghana, funding from an American university provides free mobile-to-mobile voice and text services between the 2,000 physicians who serve the country's 24 million people (Smith 2011). The mHealth Alliance projects include a SMS-based

<sup>13</sup> "Grameen Foundation Expands Technology Program for Poor Farmers in Uganda," <http://www.grameenfoundation.org/grameen-foundation-expands-technology-program-poor-farmers-uganda>. Accessed March 15, 2012.

<sup>14</sup> <http://www.rapidsms.org/overview/>. Accessed March 15, 2012.

drug-counterfeit checker developed by HP; communications systems that connect patients to their doctors or send SMS alerts on the spread of local diseases; and SIMpill, a sensor-equipped pill dispenser that informs clinics if patients fail to take their medications. This is especially important in the treatment of TB and other potential drug-resistant diseases. Partial treatment of TB leads to the development of a strain of the disease that resists the previously used treatment regiment.<sup>15</sup>

(6) Where Internet service is available, *several of these technologies come together* to empower communities against the harsher aspects of day-to-day life in areas where the government is both weak and corrupt. Bribing for basic government services, one of the common indicators of a weak state, is endemic in many parts of the world. “The going rate to get a child who has already passed the entrance requirements into high school in Nairobi, Kenya? 20,000 shillings. The expense of obtaining a driver’s license after having passed the test in Karachi, Pakistan? 3,000 rupees.” (Strom 2012) Crowdsourced monitoring systems such as [ipaidabribe.com](http://ipaidabribe.com), operated by a nonprofit organization called Janaagraha in India, allow citizens to submit anonymous reports of petty bribes.<sup>16</sup> The Cleen Foundation, an anti-corruption, crime, and police reform nonprofit in Nigeria, has established a pilot project called “StoptheBribes!”. As one drives about Lagos one encounters police in the numerous roundabouts at intersections. Rather than regulate traffic, the ostensible purpose of the police presence, the police use it as an opportunity to troll for bribes, pulling over prospects as they pass by. Several police officers surround the vehicle, with one often getting in. At that point, the driver is ordered to a nearby lot that serves as the shakedown area.<sup>17</sup> Uniformed officers are generally unseen in this area. Large and menacing men block the exit, preventing drivers from leaving without the approval of those running the operation. In response to this practice, the Cleen Foundation’s “StoptheBribes!” Campaign is intended to crowdsource information gathering about the time, location, and offending officers who solicit bribes in this manner. The officers who flag down cars wear uniforms with badges and nametags. If not during the shakedown, drivers will send the key information to Cleen, who will then use aggregated and geographically displayed totals in an effort to shutdown the practice.

These technologies tap into the social power of groups that are now connected, or at least potentially connected, by simple but effective electronic means. Most often, it is simple SMS aggregator systems such as FrontlineSMS, RapidSMS, or Ushahidi. But the question remains, do these systems rise to the level of governance? Do we see a low to zero cost system of collective action put to the provision of public goods? There are hundreds, thousands of ICT-enabled collective action initiatives found across Africa, Asia, and Latin America. Do these initiatives rise to the level of a new modality of governance in areas of limited statehood? We address this question in the final section.

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<sup>15</sup> <http://www.simpill.com/>. Accessed March 18, 2012.

<sup>16</sup> <http://ipaidabribe.com/>. Accessed March 15, 2012.

<sup>17</sup> In the course of conducting research for this study in May 2011, one of the authors was repeatedly caught up in these bribing operations while riding with staff members of the Cleen Foundation. The description is based on this experience.



## 7. Conclusion: A New Governance Modality?

Jennifer Earl and Katrina Kimport (2011) draw distinctions among three levels of technologically enabled collective action. We can use their distinctions to draw preliminary answers to the question we pose above.

First, *E-mobilizations* look very much like mobilizations from an earlier era – demonstrations, sit-ins, and other forms of protest – except they make use of the greater efficiencies afforded by technology. Technology facilitates coordination at much reduced costs. Whether one sends an email to one person or a thousand, the cost is the same.

United for Peace and Justice (UFPJ), a coalition of over 1,300 organizations, used the Web to facilitate and coordinate a massive 2007 march on Washington in just over two months. The 1963 civil rights march on Washington, on the other hand, “was comparatively more costly to produce because none of the logistics could benefit from the cost- and time-savings tools that online coordination makes possible. In essence, having a Web presence allowed UFPJ to conduct collective action at a lower cost, on a larger scale, and more quickly than it could have done without the Web.” (Earl/Kimport 2011: 5) In this way, technology is used to facilitate face-to-face, in the street protest and civic action.

There are, however, important limits to what technology can accomplish in E-mobilizations. In collective action mobilizations for the purpose of social protest, people still must gather together, be present in the protest, perhaps be arrested, go hungry, and generally pay the costs of participation. *Online facilitation is powerful to the point of meeting the offline realities of collective action.*

Earl and Kimport also describe *E-movements*. E-movements are ontologically embedded in electronic networks. Indeed, they are facilitated, created, and sustained by technology. Whereas the lower transaction costs of E-mobilizations clearly benefit from technologically facilitated efficiencies, E-movements are wholly dependent on them for their existence. For example, whereas the civil rights movement in America or the Solidarity movement in Poland existed without the benefit of technologically enabled networks, “We are all Khalid Said,” one of the more prominent protest platforms in Egypt, would not have existed without a Web platform, in this case Facebook. E-movements may help inspire other forms of collective action, or they may not.

Earl and Kimport also discuss *E-Tactics*. This is a middle ground between E-mobilizations and E-movements. It is characterized, they say, by considerable variability in the use of the affordances provided by technological networks. “How much a movement reaps the rewards of cost and copresence afforded overall will vary by how extensively it uses these e-tactics and the structure of the e-tactics themselves.” (Earl/Kimport 2011: 13)

In sum, in the case of E-mobilizations, technology lowers the cost and helps facilitate the movement of people or things as needed within the context of the action; in the case of E-move-

ments, the collective action objective is located almost entirely online. The collective outcomes are completely *informational*.

Earl and Kimport differentiate levels of collective action outcomes by use of what they call *affordances*. An “affordance” is “the type of action or a characteristic of actions that a technology enables through its design.” (Earl/Kimport 2011: 10) There are two primary affordances. The first is a “sharply reduced cost for creating, organizing, and participating in protests. It is about the radical reduction in the costs associated with starting and scaling up an “organization.” Given the historical association with organizational morphology and costs, with the very purpose and structure of organization reflective of start-up and scaling costs of collective action, radically reduced costs means that the nature and purpose of organizations are also affected. The first affordable is about start-up and scaling costs. Technologically enabled networks benefit from low to no cost communication and coordination, whether it involves two persons or thousands. The costs remain the same. Each additional unit added to the action costs the same as the first. We see these characteristics at work in E-Mobilizations.

The second sort of affordance is found in the ability to aggregate people’s individual actions into broader collective actions without requiring participants to be co-present in time and space. More importantly, technologically enabled networks can take advantage of *incrementalism*: the ability to parlay small individual actions spread out across a network and across time into major collective, coordinated actions. Wikipedia, for example, is the most commonly cited example of incremental effects of many contributors to a large-scale project. It would also seem that the various Ushahidi deployments and many if not all of the mobile phone initiatives could be characterized in this way.

A complete inventory of various collective action initiatives that, to varying degrees, rely on technological facilitation goes well beyond what we can do in this paper. What we can do, however, is use the logic of Earl and Kimport’s typology to begin to address the question we posed above. Do the collective action initiatives discussed above, such as mHealth and Ushahidi deployments, rise to the level of a new modality of governance in areas of limited statehood?

In order to evaluate this, it is meaningful to consider the different forms governance can take in areas of limited statehood (cf. Risse 2011) and the different goods of governance. First: When the state is weak, governance arrangements can (a) still work with what’s left of the state, e.g. in public-private-partnerships. Alternatively governance can (b) come from below the state and be provided as local-self governance (cf. Ostrom 1990), by non-governmental actors or by business. And finally – and in the more extreme cases of state weakness – governance services can be provided (c) from above the state, by multilateral or bilateral aid agencies or by transnational NGOs. ICT works particularly in favor of non-state actors, i.e. in favor of (b) and in favor of the non-state actors in (a) and (c). In these cases, ICT is significantly lowering transaction costs which is extremely important in overcoming co-ordination and communication problems. Examples include the formation of any kind of NGO as well as the co-ordination of, say, relief efforts bet-

ween them. The same might apply to self-governance of common pool resources for which we know communication to be a central condition for success.

Secondly, one has to consider the different nature of the collective goods that governance is supposed to provide. Most important in this regard is the question whether these goods are (only) about information or whether they are about material objects. The above example of the M-Pesa banking system constitutes a case where the object of governance (a banking system) is immaterial in that credits and accounts themselves are information. Or consider Stopthe-Bribes!. The possibility of exchanging information about bribery practices might in itself reduce bribery in that it might deter such practices. This, however, only works if the person asking for a bribe fears offline or online sanctions which might have tangible effects (such as public shaming). In such cases ICT plays a particularly important role in that the information system itself constitutes a collective good. ICT thus truly enables governance itself.

By contrast, food relief or vaccination programs are quite different. They are not only about information. They ultimately require not only the movement of “bits” but the movement of “atoms”. Here ICT can still play an extremely important role on the “bit-side”, i.e. in creating a (non-state) governance institution, facilitating its actions, supporting self-organization etc. Consider the case of the Ushahidi deployment to address the needs of stricken population in the 2010 Russian wildfires. Citizens on their own responded to the needs of other citizens according to what they learned from postings on the platform. Needed supplies were distributed in a collective action initiative created and supported almost entirely by information provided on the platform (Asmolov 2010). But also in this case whether we see governance outcomes depends on the question whether the respective governance arrangement can move from the bits to the atoms, in other words whether – after all the information has been exchanged – material and money are being moved.

Not that not all goods of governance fall neatly in the categories “bits” or “atoms”. Consider security, arguably one of the most central goods of governance. Here, the mere possibility of information exchange (based on crowd sourcing) about, say, the movement of a rebel group in a certain region (out of state control) and the possibility to communicate this to, say, international actors with the ability of military action can deter certain activities that would have otherwise taken place (such as pillaging). In other words: The provision of security can remain on the information side and only has to be structurally backed up by “atoms”, in this case in the form of military capabilities. Or consider the mHealthcare initiatives. In some cases the mere information exchange about self-treatment allows patients or their families in remote villages to come to terms with some medical problems. In many other and more difficult cases, however, information exchange is not enough. Doctors and medication have to be brought to such villages or the patients to clinics. This requires material resources, which an ICT-system in itself does not provide.

As a preliminary conclusion, we would thus say that the answer to the question whether ICT enabled collective action in areas of limited statehood constitutes a new modality of governance

is (as usual) “it depends.” ICT enabled collective action is less relevant as long as states or state institutions are still heavily involved. And for many goods of governance ICT might facilitate many things but at the end of the day such structures alone will not move atoms. However, ICT enabled collective action can constitute a new modality of governance particularly in non-state based governance arrangements where the effects of the low transaction cost are particularly strong. And particularly for those goods of governance which either are immaterial in nature (i.e. information based) or which only need structural framework conditions for information to lead to behavioral changes that in themselves constitute governance.



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Governance has become a central theme in social science research. The Research Center (SFB) 700 *Governance in Areas of Limited Statehood* investigates governance in areas of limited statehood, i.e. developing countries, failing and failed states, as well as, in historical perspective, different types of colonies. How and under what conditions can governance deliver legitimate authority, security, and welfare, and what problems are likely to emerge? Operating since 2006 and financed by the German Research Foundation (DFG), the Research Center involves the Freie Universität Berlin, the University of Potsdam, the European University Institute, the Hertie School of Governance, the German Institute for International and Security Affairs (SWP), and the Social Science Research Center Berlin (WZB).

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