RESEARCH PAPER
FEBRUARY 2022

PROVIDING GOVERNANCE IN AREAS OF LIMITED STATEHOOD THROUGH ICTs: THE NOVISSI PROGRAM IN TOGO

NADINE WUNDERER

UNIVERSITÀ DEGLI STUDI FIRENZE

Center for Cyber Security and International Relations Studies

CENTER FOR CYBER SECURITY AND INTERNATIONAL RELATIONS STUDIES (CCSIRS)

Centro Interdipartimentale di Studi Strategici,

Internazionali e Imprenditoriali (CCSSII)

Università degli Studi di Firenze

Via delle Pandette 2, 50127, Firenze

https://www.cssii.unifi.it/ls-6-cyber-security.html

Le dichiarazioni e le opinioni espresse nella presente relazione sono unicamente quelle dell'autore e non implicano l'approvazione da parte dell'Università di Firenze, del Centro Interdipartimentale di Studi Strategici, Internazionali e Imprenditoriali o del Center for Cyber Security and International Relations Studies.

Center for Cyber Security and International Relations Studies

PROVIDING GOVERNANCE IN AREAS OF LIMITED STATEHOOD THROUGH ICTs: THE NOVISSI PROGRAM IN TOGO

Nadine Wunderer

UNIVERSITÀ DEGLI STUDI FIRENZE

Research Paper

February 2022

ABOUT THE AUTHOR

Nadine Wunderer is a graduate student in the MA program "International Relations: Global Governance and Social Theory", jointly offered by the University of Bremen and Jacobs University. She holds a degree in Translation and a BA in American Studies. This paper was written during her Erasmus semester at the School of Political Science "Cesare Alfieri" at the University of Florence. Her research interests include constructivism and governance.

Abstract

This paper is concerned with how information and communications technologies (ICTs) can help the state govern in areas of limited statehood, especially if different state and non-state actors are involved. It argues that governments can expand their governance reach through ICTs with the help of non-state actors. Through Togo's Novissi GiveDirectly program – a financial relief program during the Covid-19 pandemic to those most economically vulnerable – people that had been previously 'ungovernable' have become 'governable.' This was achieved through the usage of ICTs by non-state actors, who, in cooperation with Togo's government, used satellite imagery and mobile-phone data to determine the poorest population of the country. This helped Togo's government to identify those eligible for the money and after verifying their identity the relief money was allocated to them through mobile phone technology. However, it is unclear how digital illiteracy might have dampened the success of the program. But Togo's Novissi program exemplified how ICTs can be employed to improve governance provision, especially if non-state actors are involved, and how governance can be provided alongside the state.

PROVIDING GOVERNANCE IN AREAS OF LIMITED STATEHOOD THROUGH ICTs: THE NOVISSI PROGRAM IN TOGO

Introduction

The ongoing Covid-19 pandemic has had and will have many consequences in all spheres of life; however, one development is already evident: government-ordered lockdowns all over the world have accelerated "the pace of digital transformation as information and communications technology (ICTs) are used to sustain daily lives and support business continuity" (UN 2021a, 1). Indeed, with public life closing in almost all parts of the globe to differing extents, ICTs have enabled remote education and work, helped provide healthcare, tracked infection rates, and lastly also facilitated the issuing of financial aid. Issuing financial aid will be the subject of this research paper as Togo's *Novissi* program was able to allocate financial relief to those hit hardest by the pandemic by employing ICTs.

This paper rests on the premise that some states cannot effectively provide governance in some parts of their territory or to some parts of their population – so-called *areas of limited statehood.* However, as will be contended, they can use ICTs in concert with non-state actors to expand their governance reach. Central to the concept of limited statehood and to this paper is the question "who governs for whom, and how are governance services provided under conditions of weak statehood?" (Risse 2012, 4). The paper will look at governance provision enabled through ICTs in general and the financial relief system *Novissi* issued by Togo with the help of non-state actors and non-governmental organizations (NGOs) specifically. Within disciplines studying ICTs, such global efforts are especially interesting as "they bring together the government, the private sector, and a plethora of international institutional constellations forming a new and distinctive program of government" (Navarra and Cornford 2009, 40-41).[1] This paper builds on

[1] This paper used literature in connection to the topic of ICTs in areas of limited statehood mainly from Livingston and Walter-Drop (2012; 2014) and was inspired by an unpublished thesis supervised by Livingston and written by Kovavic (2014). Livingston and Walter-Drop's work focuses on the provision of collective goods

the assumption that consolidated statehood is not the norm but the exception. And ICTs have now reached all parts of the world, meaning that they are also prevalent in areas of limited statehood, as the case of Togo will show. Togo and many other sub-Saharan countries can be identified as such areas, as "local governments do not have sufficient discretion to respond to the needs of local populations" (Breuer and Groshek 2017, 1). As the digital divide narrowed, how it is understood has also undergone a change: according to the UN (2021a, 3-4), research on the topic has widened from its physical to its economic accessibility, to cultural and societal factors how people can access ICTs. Research thus far has indeed proven that "ICT-based crowd sourcing is increasingly discussed as a potential approach to address the dynamic challenges of the governance faced by many of the sub-Saharan region's fragile states" (Breuer and Groshek 2017, 350).

This paper asks how ICTs can ensure governance *parallel* to the state.[2] This research question is concerned with how ICTs can help the state govern, especially when different actors are involved in providing goods in areas where the state is limited to do so. It will be argued that ICTs provided by non-state actors can contribute to solve governance deficiencies that Togo faces; however, the country's digital divide might render the effort not effective. The theoretical framework will first be introduced to explain areas of limited statehood and governance, after which it will be outlined how ICTs can provide governance in such areas. Togo's *Novissi* program will then be analyzed to assess how and by whom governance has been provided there.

---

through "ICT-enabled forms of steering" and the "interconnection between ICT, statehood and governance" (2012, 3) as well as the central question if ICTs "strengthen a limited state's ability to provide collective goods" (2014, 1). As they content, much of International Relations theory is still too state-centric, so they postulated a "theoretical framework for thinking about places in the world where ICT *is common but stabilized states are not*" (emphasis in original, Livingston and Walter-Drop 2012, 11). Kovacic's thesis analyzed waste management efforts in Mathare, Kenya, where the usage of ICTs enabled groups to constitute an alternative governance modality. The concept of areas of limited statehood rests on Risse's work, particularly his contribution in the Oxford Handbook of Governance (2012).

[2] In relation to the questions asked in Livingston and Walter-Drop's book *Bits and Atoms: Information and Communication Technology in Areas of Limited Statehood* (2014), which is concerned with how "ICT-enabled collective action fills governance voids found in areas of limited statehood" and if communities themselves can solve deficiencies in governance (ibid., 2). Other research on ICTs and governance provision in areas of limited statehood asked "whether [ICTs] can provide an alternative governance modality in the areas of limited statehood" (Kovacic 2014, 34).

Areas of Limited Statehood

Thomas Risse's (2012) seminal concept of *areas of limited statehood* posits that modern consolidated statehood as put forward by thinkers such as Max Weber (4), "is the exception rather than the rule" (2). Not all nation-states can provide the pillars of consolidated statehood,[3] however, not all these states can be considered 'failed' states. Rather, they cannot adequately provide what makes for a modern state in every area and for every person of its territory. Such states therefore constitute *areas of limited statehood.* Research shows that almost a third of people worldwide live in such areas (Livingston and Walter-Drop 2014, 5). While these states are still "internationally recognized [...], it is their domestic sovereignty that is severely circumscribed" (Risse 2012, 4). Domestic sovereignty as theorized by Stephen Krasner (1999) is "'the formal organization of political authority within the state and the ability of public authorities to exercise effective control within the borders of their own territory'" (as quoted in Risse 2012, 4). This leads to a differentiation between the *state* and *governance*: states that compromise areas of limited statehood have "lost their ability to govern" in those areas (Risse 2012, 5). This loss of governance can be (1) territorial, meaning that a certain territory is out of a state's reach; (2) "sectorial, that is, with regards to specific policy areas;" (3) social, meaning the exclusion of parts of a population; or (4) temporal, for example during civil war or environmental crises (Risse 2011, 5 as quoted in Kovacic 2014, 11-12).

Although such losses of governance do account for "weak or even failing *statehood* [this] does not necessarily translate into the absence of *governance*" (Livingston and Walter-Drop 2012, 7). Subsequently, as Livingston/Walter-Drop (7) outline in their book,

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

[3] Referred to as the TRUDI model, consolidated statehood is "a multi-functional state that combines the Territorial State, the state that secures the Rule of Law, the Democratic State, and the Intervention State" (Zürn and Leibfried 2005, 3), whereby the last feature, the intervention state, refers to the provision of administration, goods, and services.

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.

Areas of limited statehood can vary greatly, and "in most cases, such limited statehood indicates governance deficits, that is, the undersupply of collective goods such as security, education, public health, and so on" (Livingston and Walter-Drop 2014, 2; 6). However, it does not mean that there is a complete "absence of governance, let alone political, social, or economic order" (Risse 2012, 9). Therefore, I will now turn to the question how ICTs can serve to improve governance in areas of limited statehood.

Providing Governance through ICTs

According to Livingston and Walter-Drop (2012, 13), in areas of limited statehood "government capacities are weak or missing. In that vacuum technologically enabled governance [...] modalities fill the void." This can happen alongside established governments, however, it might also render central state control not necessary anymore.[4] Before the information age, there was need for "central control (usually by the states or other private entities)" due to "high information costs and limited resources" (Kovacic 2014, 18). Nowadays, ICTs can lower such costs, thereby making possible "new forms of collaboration by nonstate actors which, in turn, may strengthen nonstate actor efforts to bolster weak state capacity, or perhaps even fill some of the governance void created by failed states" (Livingston and Walter-Drop 2014, 8).

But ICT-based governance provision is limited: ICTs are "best suited to the provision of collective goods that are strongly affected by information," as ICTs do not supply for governance deficiencies that rely on geographical positioning – for example wells or security forces (ibid., 3). ICTs and their reliance on information therefore can primarily serve the interventionist function of governance, such as helping to provide administration, goods, and services (Zürn and Leibfried 2005, 3). This is also what Livingston and Walter-Drop (2014, 3) allude to in the title of

[4] Bennet and Segerberg (2012, 47 as quoted in Kovacic 2014, 26-27) view ICTs as enablers of what they term *connective action:* "the model behind the logic of connective action applies increasingly to life in modern societies in which institutions are losing their grip on authority and group ties are being replaced by large-scale, fluid social networks."

their work *Bits and Atoms*: while 'bits' concern the "strengthening of the provision of some collective goods [and] is largely rooted in the provision of faster, often crowdsourced, and interactive information", 'atoms' refer to "collective goods [that] are located in material or physical resources." However, modern technology and its ability to gather information in real-time "affects the human capacity to generate awareness of need and to manage the distribution of material resources in response" (Livingston and Walter-Drop 2014, 3). Bits and atoms therefore refer to "different phases of their provision" and do not make up distinct categories (ibid.). ICTs can therefore help a state govern by providing crucial information needed for governance provision.

Developing countries are special regarding ICTs: while in Western, industrialized nations, the state has had a significant role in providing ICTs, in developing countries, ICTs have primarily been driven by the private sector (Livingston and Walter-Drop 2012, 10). This is why especially in less developed countries and in weaker states, "governance services can be provided [...] from above the state, by multilateral or bilateral aid agencies or by transnational NGOs" (Livingston and Walter-Drop 2012, 18-19). This is also in line with the concept of steering versus rowing:

the notion that *governance* can increase the intervention capacity of the state by bringing non-state actors into the making and implementation of public policy, thus making the latter more efficient and less fallible [...] The catchphrase of this doctrine is that the state should limit itself to *steering* and leave the *rowing* to other actors. (Levi-Faur 2012, 10)

Since ICTs are available even in the weakest state constellations, the question whether they can improve governance while working alongside the state is especially pressing in areas of limited statehood (Kovacic 2014, 19-20). This rings especially true for ICTs such as "Internet and mobile phones, remote-sensing satellite imagery, and geographic information systems" (ibid.). As Togo and its partners in the *Novissi* program have utilized exactly these ICT components, it provides a case in point, as the next section will show.

Novissi in Togo

When a state cannot fully provide "rules, regulation, and public services" it can be considered having areas of limited statehood (Risse 2012, 12), and Togo has such provision deficits. Togo is a Least Developed Country with over 50 percent of its population living below the poverty line (WFP 2021) and the country's governance is heavily circumscribed: given the high degree of government centralization, municipalities have little to no governance reach (GIZ 2021; Breuer and Groshek 2017, 352-53). As mentioned before, government centralization can be linked to high information costs, which can be lowered by ICT employment. And these high information costs regard a large swath of people in Togo: 78.3 percent of men and 95.6 percent of women are employed informally (excluding the agricultural sector) (World Bank 2021). This renders this part of the population 'invisible' to governance modalities, as they lack statistical representation (particularly their income, as they do not pay taxes). These people are thus 'illegible' to the state and according to Scott (1998, 2 as quoted in Kovacic 2014, 4), legibility is a "central problem in statecraft." Hence, the Togolese government does not have a lot of information about informally employed people which proved to be an issue during the Covid-19 pandemic; a government program that allocated financial resources to those not having enough income anymore did not know whom to allocate the money to. While the government of Togo had the means to help those financially hit by the pandemic, it lacked the means to identify them. The provision of this collective good lacked the necessary information to allocate it effectively. How this has been attempted to be solved - with ICTs, through the *steering* of Togo, and the *rowing* of non-state actors - will be the subject of this section.

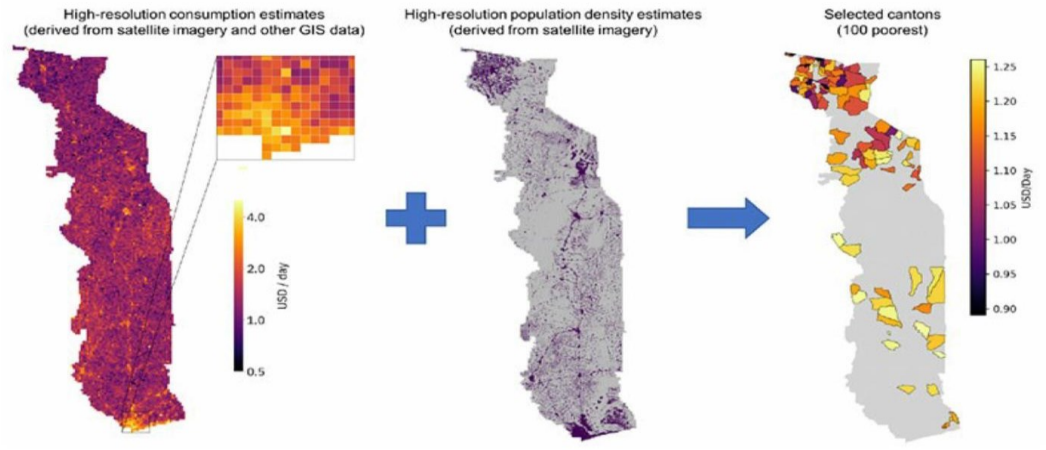
Since ICTs have penetrated even the weakest states, this section will shortly outline the prevalence of ICTs in Togo. 97 percent of the Togolese have mobile-cellular network coverage and 77 percent have mobile-cellular subscriptions, while only 12 percent use the Internet (ITU 2021). 99 percent of those having mobile-cellular network coverage have prepaid plans and the supply for airtime credit is readily available in nearly all retail places (Breuer and Groshek 2017, 353). This shows how important mobile phones are in Togo's ICT sector. In this view, as Breuer and Groshek (2017, 364) assert, "mobile phone-based development interventions in Africa stand good chances of reaching out

a sizeable majority of urban target groups", as the first phase of the *Novissi* programdemonstrates. The program was furthermore "the first program [...] using mobile phone targeting as a technique" (Malaka 2021) to decide who is eligible for the relief money, making it a particularly interesting case to assess how ICTs can help a state govern.

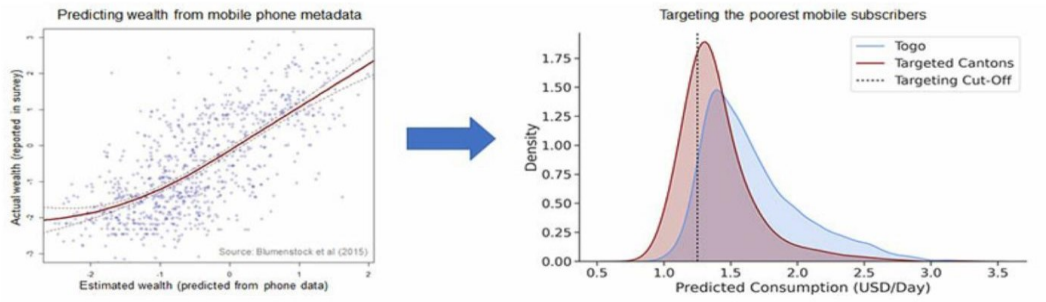
Novissi[5] is a "digital social safety net program [that] provides financial support to vulnerable informal workers whose daily revenues have been affected by the Covid-19 crisis" (UN 2021a, 2). It is supported by the World Bank and the *Agence Française de Développement* (UN 2021b). In April 2020, 1.4 million people registered for the program. Anyone listed as an informal worker in urban areas in voter ID documents was eligible and roughly 600,000 people received the bimonthly payment (Malaka 2021; Gelb and Mukherjee 2020, 9). During its second round, rural citizens were to be added. Due to the illegibility problems discussed previously, Togo did not have access to information about who would be eligible in rural areas, so it partnered with the University of California, Berkeley, Northwestern University, Innovations for Poverty Action, and the humanitarian and philanthropic agency GiveDirectly (the program was hence renamed *Novissi GiveDirectly*) (World Bank 2021). As will be shown now, the non-state actors provided the bits, while Togo provided the atoms.

Using artificial intelligence (AI), these non-state actors were able to make out the poorest rural people by using satellite imagery and mobile phone usage data. At first, an algorithm was employed to sift through satellite images compromising areas of 2.4 square kilometers looking for signifiers of poverty (such as particular housing and infrastructure characteristics). Thereby 100 of the poorest rural areas in Togo were identified. The mobile phone behavior (few international and short calls, for example) of people inhabiting these areas was then analyzed by AI to narrow down that population even further. This method was then able to identify 60,000 people who were eligible for the payments. Those who thought themselves eligible would send a text message to *855#. The government would then verify their identity through their Voter ID (Malaka 2021; Togo First 2021). The following figure clarifies this process:

[5] *Novissi* means 'solidarity' in the local Ewe language of Togo (Malaka 2021).



Prioritizing the Poorest Villages and Neighborhoods. We produced micro-estimates of the wealth of each 2.4 kilometer (km) grid cell by applying deep-learning algorithms to high-resolution satellite imagery (top left), combined those estimates with information about the population density of each grid cell (top middle), and used this information to determine the 100 poorest cantons in Togo (top right).



Using ground truth wealth and poverty data collected through a large phone survey of active mobile phone subscribers, we trained machine-learning algorithms to estimate the wealth of each mobile subscriber (top left). In the 100 poorest cantons (red distribution in right figure), those estimated to consume less than $1.25/day are prioritized for the Novissi program (dashed vertical line). These individuals are substantially poorer than the average resident of Togo (blue distribution). Source: Josh Blumenstock, University of California, Berkeley, January 11, 2021.

Figure 1: How ICTs were used to identify Togo's most financially vulnerable (World Bank 2021)

Especially the usage of satellite images shows how non-state actors have been empowered "with a technical capability that was once the exclusive preserve of a few powerful states" (Livingston and Walter-Drop 2012, 9). Those geographically marginalized (i.e., rural people) have thus become legible to the state and therefore also become governable. By the participation of non-state actors, however, it provides for a new modality of governance, where the state steers (by providing the framework conditions) and non-state actors row (by providing the technical means and their execution).

Conclusions

Due to its topicality, it is yet unclear how successful *Novissi GiveDirectly* really was in providing relief money to those in need. Studies conducted by the UN (2021a) and Breuer and Groshek (2017) on the potentials of ICTs in Togo and other sub-Saharan African countries, however, exhibit several limitations that might also apply to *Novissi GiveDirectly:* 35.8 percent of Togolese mobile phone owners do not know how to or have never "sent or received a text message" (ibid., 359). This is further amplified by one's demography:

Regression analysis further revealed that some of the sociodemographic characteristics that stand in the way of political participation also reduce individuals' likelihood of being able to effectively use digital resources. Specifically, we found gender, education, and income to significantly impact the acquisition of digital skills with women, as well as less educated and poorer individuals having lower levels of digital competence. (ibid., 364)

Although this study's data was conducted in relation to political participation, it cannot be ruled out that the same might be true for digital competencies needed to sign up for the *Novissi* program. Therefore, "in the context of governance, interventions [*sic*] even such basic solutions could unintentionally reinforce existing participatory biases related to gender and education" (ibid.). However, in 2021, phone in-person surveys are planned to assess the real-life impact of *Novissi* has had to "strengthen the training of models to detect inadvertent, predictive bias against vulnerable beneficiaries" (World Bank 2021). Furthermore, the UN's 2030 Agenda plans to ensure that "every person has safe and affordable access to the Internet," by promoting digital inclusion for all (UN 2021a, 2).

This paper has explored how governance can be provided *parallel* to the state in areas of limited statehood. It found that in the case of Togo's *Novissi* program, ICTs can help fill governance voids, especially if concerted with non-state actors. Togo's *Novissi GiveDirectly* program had to find the 60,000 poorest people in rural areas who were previously illegible to the state and therefore also not governable. Through the rowing of non-state actors who employed ICTs - especially satellite imagery and mobile phones - these people became legible. By the Togolese government's steering, their identity was verified, and they

became eligible to receive monetary Covid-19 relief funds. This was mainly possible for two reasons that can be traced back to a narrowing of the digital divide: technology has become more much more publicly available and because there is a high concentration of mobile phone usage in Togo. However, previous studies conducted on the potential of ICTs in that region revealed that there might be a digital divide *within* Togo, meaning that already marginalized people, such as the poor and women, have lower technology skills and might still be excluded from governance programs intended to help them. Though it is uncertain if the program has actually further perpetrated inequality within Togo due to its topicality, it does provide for a case that illustrates a hopeful future where governance might be easier provided even in areas of limited statehood. Future research could investigate how effective the *Novissi* program ended up being and how this particular governance provision could improve.

References

Bennett, Lance W. and Segerberg, Alexandra. 2012. "The Logic of Connective Action: Digital Media and the Personalization of Contentious Politics." *Information, Communication, and Society* 15, 739-768.

Breuer, Anita and Groshek, Jacob. 2017. "Assessing the Potential of ICTs for Participatory Development in Sub-Saharan Africa with Evidence from Urban Togo." *International Journal of Politics, Culture and Society* 30 (4): 349-368.

Gelb, Alan and Mukherjee, Anit. 2020. "Digital Technology in Social Assistance Transfers for COVID-19 Relief: Lessons from Selected Cases." *Center for Global Development Policy Paper* 181.

GIZ. 2021. "Promotion of Decentralisation Processes in Togo." Deutsche Gesellschaft für Internationale Zusammenarbeit. Accessed June 25, 2021. https://www.giz.de/en/worldwide/15006.html.

ITU. 2021. "Digital Development Dashboard Togo." International Telecommunication Union. Accessed June 28, 2021. https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx.

Kovacic, Primoz. 2014. "Digitally Enabled Collective Action in Areas of Limited Statehood – Implications of Information and Communication Technology for Collective Action on Hazard Mitigation and environmental Management in Mathare, Kenya." Master Thesis. George Washington University. Columbian College of Arts and Sciences.

Krasner, Stephen D. 1999. *Sovereignty: Organized Hypocrisy.* Princeton: Princeton University Press.

Levi-Faur, David, ed.. 2012. *The Oxford Handbook of Governance*. Oxford: Oxford University Press.

Livingston, Steven and Walter-Drop, Gregor. 2012. “Information and Communication Technologies in Areas of Limited Statehood.” *SFB Governance Working Paper Series* 38, 1-28.

Livingston, Steven and Walter-Drop, Gregor. 2014. “Introduction.” In *Bits and Atoms: Information and Communication Technology in Areas of Limited Statehood*, edited by Steven Livingston and Gregor Walter-Drop, 1-16. Oxford: Oxford University Press.

Malaka, Gharib. 2021. “The Pandemic Pushed This Farmer Into Deep Poverty.” NPR. Accessed June 28, 2021. https://www.npr.org/sections/goatsandsoda/2021/02/15/966848542/the-pandemic-pushed-this-farmer-into-deep-poverty-then-something-amazing-happene.

Navarra, Diego D. and Cornford, Tony. 2009. “Globalization, Networks, and Governance: Researching Global ICT Programs.” *Government Information Quarterly* 26 (1): 35-41.

Risse, Thomas. 2012. “Governance in Areas of Limited Statehood.” In *The Oxford Handbook of Governance*, edited by David Levi-Faur, 1-35. Oxford: Oxford University Press.

Risse, Thomas, ed. 2011. *Governance Without a State? Policies and Politics in Areas of Limited Statehood.* New York: Columbia University Press.

Scott, James. 1998. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed.* New Haven: Yale University Press.

Togo First. 2021. “Novissi Scheme: Togo Uses AI to Boost Economic Inclusion.” Accessed June 25, 2021. https://www.togofirst.com/en/social/0605-7791-novissi-scheme-togo-uses-ai-to-boost-economic-inclusion.

UN. 2021a. “Leveraging Digital Technologies for Social Inclusion.” The United Nations. Accessed June 25, 2021.

https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/PB_92.pdf.

UN. 2021b. "Togo: Using Digital Tools to Fight COVID-19 and Protect the Most Vulnerable." The United Nations. Accessed June 25, 2021. https://www.un.org/africarenewal/magazine/may-2021/togo-using-digital-tools-fight-covid-19-and-protect-most-vulnerable.

WFP. 2021. "Togo Transnational ICSP." The World Food Programme. Accessed June 25, 2021. https://www.wfp.org/operations/tg01-togo-transitional-icsp-january-2018-june-2019.

World Bank. 2021. "Prioritizing the Poorest and Most Vulnerable in West Africa: Togo's Novissi Platform for Social Protection Uses Machine Learning, Geospatial Analytics, and Mobile Phone Metadata for the Pandemic Response." Accessed June 25, 2021. https://www.worldbank.org/en/results/2021/04/13/prioritizing-the-poorest-and-most-vulnerable-in-west-africa-togo-s-novissi-platform-for-social-protection-uses-machine-l.

Zürn, Michael and Liebfried, Stephan. 2005. "Reconfiguring the National Constellation." *European Review* 13 (1): 1-37.

CENTER FOR CYBER SECURITY AND INTERNATIONAL RELATIONS STUDIES (CCSIRS)

Centro Interdipartimentale di Studi Strategici,
Internazionali e Imprenditoriali (CCSSII)
Università degli Studi di Firenze
Via delle Pandette 2, 50127, Firenze

https://www.cssii.unifi.it/ls-6-cyber-security.html

Center for Cyber Security and
International Relations Studies