

Telecommunications Politics in Authoritarian Developing Countries

(funding period: December 2016 till November 2018)

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EXECUTIVE SUMMARY

Abstract

The interdisciplinary project ‘Telecommunications Politics in Authoritarian Developing Countries’ investigated specific political and economic effects of key properties of telecommunications companies providing access to internet services. During the funding period, we primarily focused on the conceptualization and measurement of our key variables, namely ownership structures and management practices, respectively. The St.Gallen team created a novel quantitative dataset of the owner identities of all telecommunication companies that provide access to the internet in 49 sub-Saharan and Northern African countries from 2000 to 2016. The Neuchâtel team collected comprehensive information on managerial practices of selected (foreign/multinational) telecommunication companies operating in Africa. While each team focused on different outcomes—internet shutdowns in St.Gallen; human development in Neuchâtel, the two sub-projects are united in their interest in the effects of specific firm properties. Their insights will be brought together through a joint publication project on the relationship between ownership identities and managerial practices.

Research Plan

The interdisciplinary project ‘Telecommunications Politics in Authoritarian Developing Countries’ allowed us to establish a cooperation of researchers and practitioners from international organizations and non-governmental organizations (NGOs), which resulted in original and innovative time-series cross-sectional dataset on owner identities of telecommunications companies operating in Africa from 2000 to 2016 as well as comprehensive insights into managerial practices of selected telecommunication companies and human development, eight research papers (all either published or works in progress), two blog posts, two joint international workshops, and a short video documentary. The financial support by the Swiss Network for International Studies (SNIS) made this research project possible by co-financing field work, (student) research assistants, participation in academic conferences, project meetings, our short video documentary, and the international conference in Nauchâtel.

Problem Statement and Project Outline

Whether ‘the internet’—familiar shorthand for information and communication technologies (ICT) in general—represents a tool for repression or development has been a ‘hot topic’ of academic and policy debate. Despite the perceived political and scientific relevance of the topic, the state of research on the transformation of authoritarian politics through the provision of digital information and communication is characterized by scarce systematic data and little theory-oriented explanatory analysis. Academic contributions in political science and management studies alike largely view the internet not only as a technical ‘black box’ but also as a resource that governments (or any other political actor) have at their free disposal.

We acknowledge that the space for accessing and sharing digital information and communication created by the internet is actually built on a physical infrastructure that is owned and managed by a variety of private and state actors, foreign and domestic, providing access to internet services. In consequence, whether or not this space contributes to

development depends on the extent to which the state government (or any other political actor) can control the (strategic) behaviour of these Internet Service Providers (ISP). Against this, we argue that key ISP properties, namely owner identity and managerial practices are critical to understanding the political and economic consequences that investment in the telecommunications sector can have.

Our project offers theory-based and systematic empirical analyses of specific political and economic effects of investment in ICT in authoritarian contexts. Each of the two sub-projects focused on the link between one key property of ISP, namely owner identity and managerial practice, respectively, and one specific development indicator, that is political/democratic development (with a focus on political motivated internet shutdowns) and economic/human development, respectively. Each sub-project studied the respective relationship through theory-guided and rigorous empirical research in Sub-Saharan and Northern Africa, where countries show varying degrees of authoritarianism and economic growth. Also, the digital divide is especially significant, while the market potential of increasing populations makes it a thriving field for investments.

Building on an excellent basis of expertise at the Universities of St.Gallen (political science) and Neuchâtel (media management) and featuring collaboration with relevant international organisations and NGOs, our project makes a number of scientific innovations and, as a result, relevant contributions. Theoretically, the project combines insights on the link between infrastructure, management and politics from the socio-technical, management and comparative politics literature for further theorization of the internet's political and economic effects. In so doing, it offers a more realistic understanding of the development potential of investment in the telecommunications sector, taking into account the role of commercial ISP. Methodologically, we use both large-N analysis [49 African countries; 2000-2016] and small-N case studies to map and identify determinants of ownership structures and managerial practices within the African telecommunication sector as well as to elaborate on their respective links to relevant questions of political and economic development. Empirically, we produced new datasets that can be used to analyse more accurately the political and economic determinants of internet diffusion across the African continent. Specifically, we put forward an innovative and comprehensive dataset of ISP ownership structures in Africa and produced rich original insights in the application of various practices in the area of human resources management. These efforts also help to reduce the problem of missing, incomplete or absent data on most, if not all African countries.

In order to successfully conduct our research, we were able to build on an international, interdisciplinary research team that brought together senior and junior scholars from political science and media management as well as practitioners from international organizations and non-governmental organizations (NGOs). This was to ensure a wide variety of substantive perspectives as well as methodological approaches to address the research questions that motivated our project. The core team consisted of Tina Freyburg (full professor), Véronique Wavre (post-doctoral researcher, externally funded) and Lisa Garbe (doctoral researcher, SNIS-funded) from the University of St.Gallen, and Cinzia dal Zotto (associate professor) and Aïcha Hammami (doctoral researcher, SNIS-funded) at the University of Neuchâtel. In order to support the creation of our original large-N dataset on ownership structures of all telecommunications companies providing access to the internet in all mainland sub-Saharan and Northern African countries (plus Madagascar), we hired a number of student research assistants at the University of St.Gallen at the 20 percent level.

Project Accomplishments, Output, and Outlook

The project achieved its main objectives: the creation of an original database of ownership structures of telecommunications companies operating on the African continent [2000;2016]

as well as the production of comprehensive knowledge about the consequences of varying practices in human resources management for human development taking a sub-sample of these telecommunications companies. The crucial next step will be to bring the insights of the two sub-projects together—this will be done through a joint publication project on the impact of ownership on managerial practices in the telecom sector. From the perspective of our project, the multi-authored paper will explore whether and how different owner identities employ different practices in human resources management, and the implications thereof in terms of political/democratic and economic/human development. We envisage to compare two country-cases, Cameroon and Ivory Coast, in which two big multinational companies are present, the French Orange and the South-African MTN. This joint St.Gallen-Neuchâtel paper will be drafted after each team has finalized its core publications presenting the key insights of the respective sub-project.

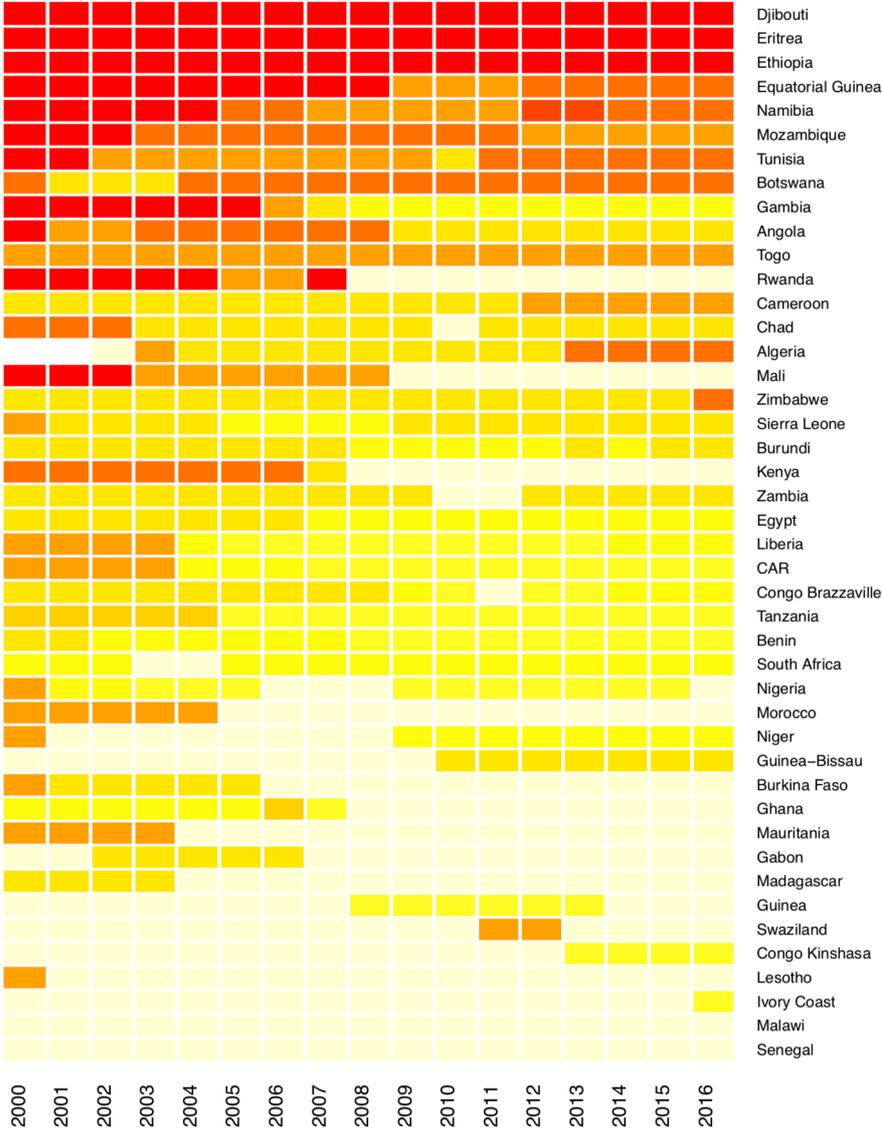
Subproject 1. The *St.Gallen team* (Tina Freyburg, Lisa Garbe, and Véronique Wavre¹) focused on the link between the owner identities of telecommunications companies providing access to the internet and chances of politically motivated internet shutdowns. Tangible outputs are (1) the database of the ownership structures of Internet Service Providers (ISP) in Africa, accompanied by a detailed codebook as well as a draft paper introducing the database; (2) a published research paper presenting first results on the relationship between state involvement in the ownership of ISP and the occurrence of shutdowns using a sub-sample; (3) an international consortium of computer and political scientists working on the technical measurement of politically motivated temporal disruptions of the provision of internet; (4) a draft paper on the link between varying ownership structures of ISP and the likelihood of internet shutdowns using state-of-the art research techniques of data collection and analysis; and (5) a short video documentary about the role of telecommunications companies in internet shutdowns.

The Telecommunications Ownership and State Control (TOSCO) database. This new time-series cross-sectional database provides crucial new information to the study of the economic and political consequences of the internet in Africa and beyond. Its creation was essential as, so far, empirical research based on developing countries in general and African countries in particular has suffered from selection bias and limited or inaccurate empirical data. A team of student research assistants (Helen Pittam, Henry Schmees, Suen Wang, Johannes Matt, and Dominic Brotschi) collected the data on the owner identities of all ISP operating in any of the 49 independent mainland countries in sub-Saharan and North Africa plus Madagascar between 2000 and 2016. The collection of the publicly available information was guided by a detailed codebook technically describing how the individual variables are defined, coded and arranged in the data file. Data quality is very high, as suggested by various validity and reliability checks, including consolidation of the data through comparison with available, though spatially and temporally restricted, data from market research and analysis companies such as telegeography.com.

The total number of telecommunications companies included in TOSCO is 183. Covering the time period from 2000 until 2016, i.e. 17 years in total, our dataset includes 7'878 observations in company-years. The number of companies operating in a country varies greatly from 1 in Djibouti and Eritrea to 8 in Ivory Coast and Somalia in 2016. In 2000 there were 105 companies operating on the African continent, in 2016 the number increased to 169 companies. About 50 per cent of the companies in 2000 were majority-owned by the state, in 2016 the percentage of state-owned companies decreased to 34 per cent.

¹ Véronique Wavre is funded through a postdoctoral fellowship provided by the University of St.Gallen.

Figure 1. Temporal variation in ISP ownership structure across the sample



Note: The darker the squares are shaded, the higher the degree of state involvement in ISP in a country in a given year.

Figure 1 maps the different degrees of state involvement in ISP in Africa for 2000 until 2016, namely the share of companies that are state-owned in the total number of companies within a given country. To this end, we counted the number of companies that are either majority (>51 per cent) or minority (≤ 50 per cent) state-owned at the country-year level. Figure 1 shows considerable variance in the structure of ISP state ownership that cannot be simply explained by varying regime types or economic development. It turns out that in several African countries, the share of state-owned companies is 100 percent. In Djibouti, Eritrea and Ethiopia, the government always was the majority-owner of the only ISP operating in their country between 2000 and 2016. In Senegal and Malawi, on the other hand, the state had no majority in any ISP between 2000 and 2016. In several countries the degree to which the state is involved has considerably changed over time. In Mali, for example, the extent to which the state hold shares in ISP operating on its territory decreased over time.

Next to the owner-identity variable, the database includes crucial additional information, notably a company's market share, the location of the dominant shareholders' headquarters as well as whether the respective country is democratically constituted, or not. Like the ownership variables, these additional variables are coded at the level of the individual company. These additional variables shall be useful for comprehensive analyses of determinants and effects of varying patterns of ISP ownership. The careful conceptual framework backing this dataset is an essential first step in mapping and understanding the empirical patterns of telecommunication politics in authoritarian contexts. It also enables straightforward extension to other parts of the world for comparative research. The database will be made publicly available, together with the detailed codebook, once the key findings are published. We will further publish a paper introducing the database, as specified below.

The international consortium of computer and political scientists. We are currently working on the development of an accurate, politically unbiased measure of temporary interruptions of access to the internet that can be analysed over time and across ISP. Existing efforts to examine internet censorship so far are subject to at least two important caveats. First, they largely rely either on data at the country-level based on media reporting or on information self-reported by the respective governments as provided by the International Telecommunications Union. Both have been shown to being unreliable in precisely authoritarian and developing contexts (Chinn & Fairlie 2007; Weidmann et al. 2016), and both also provide no systematic information at ISP-level. Second, they miss to utilize the more technical approaches to measuring control and manipulation of ICT that are currently being developed by computer scientists.

Putting aside methods of censorship such as physical repression, the most common strategy is the routing mechanism, which manipulates access to parts of the network (Dainotti et al. 2014). Given that each ISP runs its own physical network, the disruption can be limited to a specific network. In consequence, if we observe a shutdown in a country, it is not automatically and necessarily the case that all ISP interrupted the provision of their services; some might have continued to provide access to the internet. Our measurement therefore utilizes changes in the BGP routing state of the internet based on the Routing Information Service of the European Regional Internet Registry RIPE NCC in Amsterdam. RIPE NCC collects data on the reachability of BGP-announced prefixes by sending automated requests to numerous AS worldwide, every eight hours. This publicly available data hence consists of precise snapshots of what prefixes are reachable at the moment the snapshot is taken. Based on this information, we can know for each ISP individually whether or not it provides access to the internet at that moment.

In order to transform the raw 'big' real-time internet activity data into a numeric representation of disruption events suitable for large-N analysis at the company-year level, we have established an international consortium of computer and political scientists specialized in the (technical) measurement of internet activity. While we have been collaborating with individual members of the consortium over the course of the SNIS-funded project, the whole team will come together for a day-long research workshop in the context of the next 2019 annual convention of the International Studies Association (ISA) in March in Toronto. All workshop participants have committed to contribute to the development of a technical measurement of internet shutdowns suitable for social sciences research. See here for the official conference program, with our workshop on page 2: <https://bit.ly/2RmSTV3>.

Scientific publications. Five (working) papers document our achievements. While working on these papers, we have been greatly benefitting from feedback from experts with different backgrounds, especially political and computational social sciences, but also the practitioners associated to our project.

We published a first scientific article, entitled “*Blocking the Bottleneck: Internet Infrastructure and Shutdowns during Authoritarian Elections in Africa*”, with the peer-reviewed interdisciplinary ‘International Journal of Communications’ as part of the special issue “Authoritarian Practices in the Digital Age” edited by Marlies Glasius and Marcus Michaelsen (University of Amsterdam). This article presents the main argument linking ownership of the internet infrastructure, in particular ISP and internet shutdowns. A qualitative covariation analysis of different ISP ownership structures and documented internet shutdowns in African countries reveals a positive relationship between companies run by authoritarian states and a temporary halt of internet provision during times of political uncertainty, notably election periods. It further identified Uganda as a particularly interesting case for further inquiry: a fully privatized telecommunications sector in which all companies are majority-owned by foreign investors that agreed to comply with the governmental request to block access to internet services during the period of the two most recent authoritarian national elections in 2011 and 2016. We then studied the relationship between the state government and these companies in-depth on-site in summer 2018. The article is available open-access at <https://bit.ly/2SmZT1q>.

Our first working paper is provisionally entitled “*Choke Points of Control: Ownership of Internet Service Providers and State Control in Africa, 2000-2016.*” This paper describes the content, quality, structure, and potential uses of our dataset that maps ISP ownership in sub-Saharan and North Africa from 2000 to 2016. Next to a detailed discussion of the conceptualization and operationalization of ownership as a variable, we explore the (conceptual) validity but also significance of this variable in explaining patterns of internet penetration across the African continent. Based on these findings, we briefly outline how TOSCO can be used to investigate the existence of ownership effects in the telecommunications sector, i.e. whether there are systematic performance and control differentials between state-owned ISP and privately-owned multinational ISP, among other categories. The data can be aggregated at various levels, including region, country and the individual shareholder. The data also lends itself for networked analyses, enabling to follow the development of certain actors/companies across time and countries. The paper has been presented at various thematic workshops and research colloquia. It is targeted at international peer-reviewed political science journal that publishes dataset papers (e.g., ‘Journal of Conflict Resolution’; ‘Journal of Peace Research’).

The second working paper “*The internet as a research tool: Bridging politics and technology in the study of internet shutdowns*” presents the conceptualisation and technical measurement of internet shutdowns utilising large-scale data of real-time BGP activities. Drawing on recent attempts by computer scientists to measure internet shutdowns (Dainotti et al., 2013, Roberts et al., 2011), it will introduce an accurate, technical measure of politically motivated interruptions of access to the internet that can be analysed at the firm-level. We concentrate on routing disruption, a coarse but technically straightforward and efficient approach that is clearly detectable and can be traced back to the individual autonomous system, and hence the ISP. Our measurement utilises changes in the BGP routing state of the internet based on the Routing Information Service of the European Regional Internet Registry RIPE NCC in Amsterdam. RIPE NCC collects data on the reachability of BGP-announced prefixes by sending automated requests to many AS worldwide, every 8 hours. This publicly available data hence consists of precise snapshots of what prefixes are reachable at the moment the snapshot is taken. Based on this information, we can know for each ISP individually whether or not it provides access to the internet at that moment. The paper will be co-authored with participants from our multi-disciplinary workshop prior to the 2019 conference of the

International Studies Association (ISA) in Toronto². The workshop aims at generating theoretically grounded empirical knowledge about the political and economic conditions and outcomes of internet shutdowns in authoritarian/developing contexts. We have invited 13 political and computer scientists specialized in the study of internet activity. The raw and processed data shall be made available to the academic community, including the algorithm used to turn the raw data into a format that can be handled by dominant data analysis software, notably R and Stata. In so doing, the paper will contribute to the development of new research techniques to transform real-time internet-based data in a manner so that it can be effectively processed in political science research. This paper is targeted at ‘Political Analysis’, a highly-ranked political science journal that puts an emphasis on new ideas for the empirical analysis of politics.

The third working paper “*Not every company is the same: Ownership of internet infrastructure and chances for political internet shutdowns*” presents the key findings of the St.Gallen sub-project. We are interested in determining the effect of different types of ownership of telecommunications companies on a state’s capacity to make a company comply with its request to temporally interrupt or manipulate its services. We systematically disentangle different types of owners and determine the conditions under which and the mechanisms through which the government can influence a company’s behaviour. In developing our argument, we draw on prominent strands of international business studies, notably agency theory, property rights theory, public choice theory, and theories of regulation (Megginson & Netter, 2001; Perotti, 1995; Shirley & Walsh, 2000). Yet, these theories have not yet been empirically applied to the telecommunications sector, let alone ownership of the internet infrastructure. We explore the link between infrastructure ownership and state control based on cross-sectional time-series analysis using our original ownership and shutdown datasets. Our statistical analysis will be complemented with qualitative comparative case studies involving detailed exploration of low residual cases. Our preliminary findings suggest that there is not only variance in ownership of ISPs in today’s sub-Saharan Africa but that differences in ownership also matter with regard to the likelihood of internet shutdowns (cf., Freyburg & Garbe, 2018). Overall, this project seeks to build a bridge between political science scholarship and the more technical literature borrowing from engineering and computer science, on the one hand, and international business studies and research on corporate governance in developing authoritarian contexts, on the other. The paper has been and will continue to be presented at international conferences, including the 2018 annual conventions of the Midwest Political Science Association and German Political Science Association as well as the 2019 European Political Science Association. It is targeted at one of the top peer-reviewed political science journals (e.g., American Journal of Political Science; Journal of Politics).

Besides, we plan to explore the ownership database from a more business-oriented perspective. Current ideas evolve around the observation that the effects of majority ownership by the state vary considerably depending on regime type (democratic or not) and the site of the company’s head office (local or foreign). For instance, we are interested in exploring the link between varying degrees of state ownership, on the one hand, and the diffusion of internet access or the location choices of companies with headquarters in European democracies, respectively, on the other. In particular, two papers are planned, each exploring the relationship between different ownership structures and the development of the telecommunications market in Africa since the arrival of the internet on the continent. The first paper focuses on the link between ownership of telecommunications companies and the

² The workshop was accepted by the ISA Research & Workshops Grant Committee (around USD 15,000) and appears in the program of the 2019 ISA Annual Convention in Toronto, Canada. Participants include extremely knowledgeable political and computer scientists (e.g., Dainotti, Ron Deibert, Kavé Salamatian and Joss Wright).

provision of access to the internet; the second paper seeks to explain the location decision of European companies in Africa, with a focus on their motivations to leave the market again. The analyses will be based on the cross-sectional, time-series quantitative dataset on ownership structures of internet service providers operating on the African continent, complemented with qualitative insights from interviews with (former) employees of relevant telecommunications companies plus pivotal primary documents (e.g., court documents, licence agreements). Key insights from each of these studies shall be published with top peer-reviewed journals at the cross-section of political science and business management (e.g., *Business & Politics*; *Journal of International Business Studies*).

In addition, our doctoral researcher Lisa Garbe is working on her single-authored paper that will be part of her cumulative dissertation project at the University of St.Gallen. Lisa looks more closely at the effects of internet shutdowns on the conduct of elections, by taking the case of the social media and mobile money shutdown during the 2016 presidential elections in Uganda. Based on qualitative interviews with journalists, citizen activists, and politicians in different districts in Uganda (October/November 2018)³, she refines existing theories on electoral fraud, vote buying and intimidation, accounting for the role of digital technologies. Combining original SMS-survey data from a civil society organization on election fraud and violence in all Ugandan districts with data on internet penetration at district level, she explores whether the shutdown's impact on the conduct of elections was more severe in those areas that were opposition strongholds before the elections.

Next to the academic (working) papers, we published two blog posts. The first post appears in the research corner of the Open Technology Fund and is largely based on our first journal article, see here: <https://bit.ly/2QcnnEQ>. The second post appears on the Net Politics blog of the Council on Foreign Relations and presents key insights from a small side-project of our doctoral researcher Lisa Garbe on China's increasing investment in Artificial Intelligence across the African continent, see here: <https://on.cfr.org/2UXv3hy>.

The video documentary. It is our ongoing ambition to increase the awareness of the threats to human rights in the digital realm. To present our findings in an accessible manner to a larger audience, we have produced a video documentary of less than 9 min. The video documentary is entitled 'Citizens offline: the state, the telecom companies, and internet shutdowns' and was produced together with the professional video journalist Noémie Guignard (Télévision Suisse Romande). It is largely based on our study trip to Uganda; Noémie was able to come with us to Uganda to capture original footage. We complemented the key interviews with Ugandan activists fighting for digital (human) rights with quotes from our collaborators in St.Gallen, notably our guest professors in 2017 and 2018: Ron Deibert from the CitizenLab at the University of Toronto and Steven Livingston from the George Washington University in Washington DC. The video shall bridge the gap between specialised scholars and interested citizens without scientific background. We presented a draft video at our final workshop in Neuchâtel and will widely distribute it through university and social media channels (e.g., Youtube, Vimeo, Facebook), among others, but also present it at public lectures and short film festivals, notably the *Wirtschaftsfilmtage* and the *DOK Leipzig*.

This summary of research results and outputs demonstrates the immensely productive collaboration among the members of the sub-project team at St.Gallen throughout the project period. The exchanges and collaborations among the different academic and non-academic members of the project team were extensive and intense. They involved academics from the disciplines of political science, business administration and computer science as well as practitioners from NGOs (Access Now, CIPESA), international organizations (International

³ While the first SNIS-funded team trip centered on interviews and archival research in the capital of Kampala, Lisa Garbe's second individual trip to electoral districts was externally funded through a Bucerius fellowship of the ZEIT foundation.

Telecommunications Union, European Broadcasting Union) and the largest Internet Exchange Point in Switzerland, SwissIX. This intensive, multi-disciplinary exchange considerably improved the scope and quality of our research. It also helped and will continue to help to expedite the dissemination of our work in the wider academic community as well as among interested practitioners in international and European organizations and NGOs.

Nevertheless, we had to modify our original project schedule as outlined in the initial project proposal. It turned out that we could not rely on existing datasets, as originally planned, because the few available, ready-made data is not only self-reported by the statistical services of the concerned countries (hence, unreliable and insufficiently comparable, in particular as regards authoritarian developing countries) but also tends to be missing or incomplete for several sub-Saharan and North African countries, in particular for the early 2000s. In consequence, we had to create our own dataset. The human resources and desk work required to build up the large-N database were considerable. We identified all telecommunications companies that are (associate) members of the Global System for Mobile Communication Association (GSMA), with a physical presence in the territory on which they operate and that hold official state licenses to operate cables between 2000 and 2016 in any of the African countries that are subject to our study. In coding the owner identities of these companies based on their shareholders, we consider three levels. First, we identify all telecommunications companies that provide internet services—fixed and mobile broadband—in a country. In 2016 Angola, for instance, there are two mobile companies: Unitel (Angola) and Movitel (Angola) and one fixed: Angola Telecom, which is 100 percent state-owned. Second, for each of these companies, we list the shareholders that hold at least 5 percent of their total shares. In the case of Unitel (Angola), this would be Africatel (Netherlands), Sonangol (Angola), Mercury/MSTelcom (Angola), and Vidatel (Angola). Finally, and if applicable, we take into consideration the respective mother companies, i.e. shareholders owning each of these five shareholders. For instance, Oi (Portugal/Brazil) owns 86 percent of Africatel (Netherlands). Here, we refrain from listing all different corporate forms of the same company group, which often only serve tax purposes. That is, if a company is 100 percent owned by another company and possess the same brand name, we only code the groups' mother company where the group headquarter is based.

Data comes primarily from financial analysis software (e.g., Thomson and Reuters' Eikon [eikon.thomsonreuters.com] and Orbis [orbis.bvdinfo.com]), specialized blogs (e.g., Research ICT Africa [www.researchictafrica.net]), news websites like All Africa [AllAfrica.com] and Quartz Africa [https://qz.com/Africa], and Bloomberg Snapshot repositories [www.bloomberg.com]. This information is triangulated with the annual reports provided by the telecommunications companies and data from market research and analysis companies, in particular African Telecommunications News (AMETW) [www.africantelecomsnews.com] and TeleGeography [www.telegeography.com]. We systematically conducted inter-coder reliability checks by double-coding randomly selected years and countries to ensure the accuracy and quality of our data. In a final stage, we went several times through the entire sample in order to clean up the data and address specific questions that have occurred at earlier stages of the project. The time needed for assembling the database was longer than expected given the amount of data that needed to be processed and the need to ensure the quality of the coding. As a result, the analyses that use the new data have only recently been started and will continue in the coming months. In fact, we have secured funding for another 12 months through the basic research fund of the University of St.Gallen.

Subproject 2. The *Neuchâtel team* (Cinzia Dal Zotto and Aïcha Hammami⁴) investigated the influence of different management strategies on the success or failure of foreign direct

⁴ Aïcha Hammami went on maternity leave from the beginning of July to the end of October 2018. During this period, we hired on a part-time basis Hatem Gabsi and Mansour Omeira, two doctoral students already working on a 50% basis at the

investment (FDI) in terms of unleashing ICT's potential to foster economic development. We started by conducting an extensive literature review on the nature and the extent of foreign direct investment in the ICT sector in general and in sub-Saharan African (SSA) countries in particular. Despite the introduction of ICT policy frameworks and reforms, the ICT development index still classifies SSA countries among the least performing and least connected of all. However, FDI appears to be one of the main reasons why the ICT sector experienced such a rapid growth in some African countries.

In order to understand how concretely FDI impacts not only on the development of the ICT sector but also indirectly on human and economic development we further studied the managerial strategies and practices that telecommunication companies implement when investing in Africa. We focused in particular on strategies and practices addressing human resources, which we consider as key beneficiaries of sustainable development. In this respect, we noticed that differences exist when confronting investments coming from Northern and Southern foreign companies. We therefore decided to dig deeper and investigate the determinants of those differences, aiming at gaining insights on the factors that could help both investors and governments to foster human and economic development.

Tangible outputs of our research work are (1) three working papers addressing the state of the art of FDI in sub-Saharan Africa, and the human resource management practices within multinationals in the African telecommunications sector, both from a Northern and Southern origin perspective; (2) an international conference, which included two days, one dedicated to an international academic workshop and one to an exchange among professionals, academics and experts from non-governmental organizations and institutions; (3) an international network of academics and professionals in the media and telecommunication sectors, both interested in continuing the process of knowledge exchange and development – started already in 2015 with the first edition of the conference on media development – and already committed to contribute to a third edition of the same conference.

Scientific publications. Our work is documented by three working papers which could see the light thanks to the input of experts from different disciplinary fields whom we met during our media development conferences, at the SNIS kick-off workshop in St.Gallen as well as through the SNIS-funded field trip in Tanzania.

To understand the effect of FDI in terms of human and economic development, it was critical to explore the practices chosen by multinational companies (MNCs) in the implementation of their FDI strategies. In our first working paper entitled "*The FDI-Economic Growth Nexus: A Human Resource Management Perspective: The case of the ICT sector in Sub-Saharan Africa*" we first describe FDI trends, FDI actors and outcomes in sub-Saharan Africa. We further highlight the relevance of the ICT sector for human and economic development, and detail the related trends, policies and challenges in order to shed light on the role of FDI in that specific field. Finally, we focus on the HRM practices implemented by foreign investors, i.e. multinationals, assuming that they can directly impact on human capital development, one of the basic conditions to improve the absorptive capacity of the country, catalyze further FDI and thus engender economic growth. At this stage, our literature review on the FDI-economic growth nexus demonstrates both positive and negative impacts depending on several factors such as the country of origin of the FD Investor, host-country characteristics such as openness to international trade, absorptive capacities and technological capabilities of the local human capital. This supports the view that the HRM practices applied by the FD investor can be a critical factor for both the success of the investment and for its impact on economic growth in

Enterprise Institute of the University of Neuchâtel. Their support has been essential to ensure the preparation of the international workshop held on November 8-9, 2018 as well as to continue the research work that led to the third working paper.

the host-country. We further identified three main issues that involve choices in terms of HRM and can thus moderate the spill-over effects of FDI: the employment and wage levels, the convergence or divergence of HRM practices, and the knowledge and technological transfer. We presented this paper at two conferences (the SNIS kick-off workshop at the University of St.Gallen, in May 2017, and the Information and Communication Technologies in Organizations and Society Conference at the University Paris Nanterre in March 2018). A revised and extended version of the paper is targeted at international journals (Academy of Management Perspectives or Schmalenbach Business Review).

The second working paper entitled “*International human resource management practices as critical factor of Western FDI success: The case of the African mobile telecommunications sector*” was presented at the World Media Economics and Management Conference at Rhodes University, South Africa in May 2018. The paper is targeted to international peer-reviewed journals (Journal of International Business Studies, or International Journal of Human Resource Management). It presents our key findings in terms of human resource management practices in the African mobile telecommunication sector. Investments in this specific sector are not only substantial—and thus requiring the involvement of foreign investors—but also politically relevant as they are directly related to government decisions on information and communication policies. Considering the influence that the country of origin of the foreign investor can have, we realised that we needed to consider two regional clusters: the one representing recipients of north-western foreign investors and that including recipients of south FDI. In this paper, we focused on the north-western investor cluster. We conducted interviews with numerous experts among chief executive officers and human resource managers/directors of north-western mobile telecommunication MNCs operating in Africa as well as representatives of the GSMA (the Global Association of Mobile Operators) and the World Bank in Africa. Most interviews were conducted face-to-face at the GSMA Mobile 360 Series-Africa Summit in Tanzania in July 2017. Further rounds of interviews with the same interviewees – aimed at gathering complementary information, validating the collected data and searching for consensus around specific issues – followed either via skype or email. Insights gathered from experts at the kick-off workshop in St.Gallen and as well as from representatives of the Fondation Hirondelle (one of our partners) were fundamental to both develop our questionnaire, to contextualize and further cross-check the gathered information.

We found that foreign multinationals in the telecom sector are facing many difficulties in terms of infrastructure, regulations and human resources. Actually, in order to achieve more investments, the increasing burden of infrastructure costs needs to be shared. This holds in particular true if investments to expand internet provision and access to more rural areas are to be considered. To overcome these challenges, the different stakeholders of the mobile industry— governments, operators, NGOs and financial institutions—have to collaborate to create incentives for a sustainable economic growth and social development. Further, by directly creating new job opportunities it is quite clear that FDI brings solutions to the increasing employment needs, an issue of both high political relevance and high impact as it can directly contribute to human capital development. Indeed, as our findings show, telecommunication companies are implementing human resource management practices and adapting them to the highly competitive African market. On one hand MNCs are investing in local employees’ development. However, as local talents are still scarce and HR development takes time, they send expatriates to the African subsidiaries or recruit talents from the diaspora. Therefore, more efforts are no doubts essential for the development of locals.

Our third and last working paper entitled “*Human resource management in the African telecommunications sector: A decent work perspective*” is being finalized and will be submitted to the Academy of Management Conference to be held in Boston, USA, in August 2019. Management scholars have given increasing attention to the performance of Northern

and Southern multinational enterprises in Africa. Such studies, however, have seldom addressed the question of human resource management. Further, they have typically focused on enterprise outcomes rather than societal ones. In this paper, we specifically address not only the differences in HRM practices between north-western and southern foreign investors but also the importance for foreign investors to be inclusive by considering human resources as the key beneficiaries of sustainable development. We adopt in this respect a decent work perspective to compare human resource management practices and outcomes across the African telecommunications sector based on available secondary data. In order to conduct a thorough content analysis of all available information – gathered from company annual reports, market research and analysis companies, in particular African Telecommunications News (AMETW) and other secondary data – and triangulate it for cross-validation purposes, we developed a database on Human Resource Practices and Outcomes in the Telecommunications sector (HRPOTEL). Our purpose here is to elaborate implications for management scholarship, practice, and policy in the field of HRM for sustainable development.

In addition, we plan to publish a special issue of a peer-reviewed journal including papers identified through a special call for papers that we will send out in early 2019. The authors of the papers presented at the conference held in Neuchâtel in November 2018 will have the chance to submit a revised version of their papers to the call. The special issue will address the topic of “Ownership Structures and Managerial Challenges in the African Media and Telecommunications Sectors”. We are currently negotiating with the Journal of Media Business Studies and the International Journal of Media Management.

International conference. The conference aimed at investigating the impact of varying foreign ownership structures and managerial practices on (a) media and telecommunications policies, and (b) democratic and economic development in African countries. In order to advance research in the field but also to stimulate a constructive dialogue between practitioners and academics, this conference dedicated one day to an academic workshop & one day to professional contributions. Prominent academic researchers, professionals, journalists and representatives of nongovernmental organizations coming from Africa and other parts of the world gathered and discussed the topic in different panels. A dedicated website was created for the conference held in Neuchâtel in November 2018, which is available at <https://www.unine.ch/africamedia>. The website includes summaries of the main contributions to the conference and serves as information platform for researchers and practitioners interested in the field. It will be regularly updated with information about publications related to this research project as well as to the next planned conference on media development in Africa.

Overall, we are quite satisfied with our results considering the enormous research gap that exists in this field and the difficulties in studying such an underexplored terrain. Even though we initially envisaged a methodology based on interviews and case studies as methods to collect our primary data, the difficulties we encountered brought us to complement interviews with other methods. The difficulties are related to the availability and accessibility of senior management and C-level experts from telecommunication operators and equipment providers, as well as the reticence of some interviewees to share confidential information or personal opinions. Budgetary limitations as well as the unplanned maternity leave of Aicha Hammami did not allow for undertaking extensive fieldwork in selected African countries to discuss with other stakeholders, particularly local staff. The team thus opted for the development of a dedicated database on Human Resource Practices and Outcomes in the Telecommunications sector (HRPOTEL). This database serves as a basis for the content analysis of our third working paper. However, we plan to update it regularly in order to use it for our further research in this field.

Indeed, Aicha Hammami's doctoral thesis is based on the research conducted thanks to the SNIS funding during the past two years and will be completed in the summer of 2020. To complete her thesis Aicha Hammami will be able to profit not only from the research that we already conducted but also from the extensive network of researchers and practitioners that we were able to develop along the way. She will extend the empirical part of her thesis with case studies in Cameroon, Ivory Coast as well as Kenya and Ghana, countries in which we now have established strong connections with both academic and professional experts in the media and mobile telecommunication field. With the research we conducted during the funding period, we explored how and through which practices HRM can contribute to the success of FDI in the SSA telecom sector. We were able to extend the existing literature and knowledge in the field, however some questions remain open and some new questions arised, which will be addressed in Aicha Hammami's future PhD research, in particular:

- What are the HRM practices implemented by southern FD investors? In what way are they different compared to those of western FD investors? Do the different type of investments have different implications on the UN sustainable development goals?
- What are the spill-over effects on human capital or, more in general, economic development that HRM can engender in the host country, and through which practices?

Project Academic Contributions and Policy Recommendations

The interdisciplinary project 'Telecommunications Politics in Authoritarian Developing Countries' generated theoretically grounded empirical knowledge about certain political and economic consequences of internet diffusion in developing contexts. The research is of high relevance to scholars and policy-makers alike; its approach is novel and innovative from a theoretical, empirical and policy perspective.

Theoretically, the project builds on two strands of social science research, with each pointing to the importance of the properties of telecommunications companies, notably owner identity and managerial practices, in terms of specific political and economic consequences that investment in the telecommunications sector can have. Specifically, we extended the literature on the political and economic effects of internet provision in authoritarian developing contexts with key insights from studies of internet governance through infrastructure in the tradition of science and technology studies but also management research.

Empirically, our project investigated important claims made in the literature and common discourse about the effects of ICT in the developing context regarding the two prevailing but potentially mutually exclusive objectives: economic growth based on technological development and state control of the technological infrastructure. Considering the pivotal role of ISP allowed us to unpack this 'dictator's dilemma' in at least two ways. First, we investigated the strategies that African governments developed in order to maintain control over companies in which the state does not hold at least the majority of shares. Second, we explored how these companies, in particular those with headquarters in democratically constituted countries, dissolve the conflict of being subject to two potentially conflicting laws: the local law requiring compliance with government requests, and the national law comprising (international) human rights standards, following thus the Sustainable Development Goal #16 (peace, justice and strong institutions).

Our insights can support policy-makers and practitioners at the national and international levels in making evidence-based decisions about how to address contemporary global challenges of inefficient and unfair provision of internet access. Knowing what ISP have been involved in extending internet access, corruption, or blocking access to information and

services can help policy-makers to make informed decisions when addressing a variety of concerns. It allows politicians, activists and other political actors to call on ISP to respect human rights, and to mitigate or remedy harms they cause or contribute to. Furthermore, having insights on the impact of foreign direct investment strategies as well as foreign investors' managerial practices in relation to human resource (HRM) management issues such as talent acquisition and development, but also motivation, compensation and career planning, provides practitioners with an orientation when investing in African countries. In line with the Sustainable Development Goals #8 (decent work and economic growth) and #17 (partnerships for goals) our results can help foreign investors to be (more) aware of the impact they can have on the human development in their respective host countries by implementing different HRM practices as well as through collaboration activities with all stakeholders.

Constant consultation with relevant practitioners and experts at all stages of the research project ensured the practical applicability of the project's findings. In particular, we wish to highlight the following practical and policy recommendations based on our research. We recommend to ...

- revise the provisions of the Constitution of the International Telecommunication Union as some of them have been used by state governments (and telecommunications companies) to justify the violation of human rights law, in particular as regards Article 19 (Freedom of expression and information);
- develop the capacity of local staff to ensure the sustainability of infrastructure, by including them in the process from the start, training them, and instilling a culture of lifelong-learning, rather than relying on intermittent external expertise;
- adopt a holistic view of development that is not restricted to technology, by also addressing its social, cultural, political, economic and ecological dimensions;
- develop new models of collaboration between technology, media, and telecommunication operators to ensure not only access to information but also the development and delivery of relevant local content in local languages to enhance the use of information;
- address universal access to information, by exploring alternative business models based on elements such as subsidies and collaborative technological platforms to make increased coverage, especially in rural areas, economically viable;
- ensure respect for human rights and avoid facilitating their infringement by foreign actors (including multinational companies) applying a level of standards that deviates from the one 'at home';
- engage in dialogue on the ethics of foreign direct investment to ensure that business is conducted ethically and efficiently.

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