DATA JOURNALISM IN TANZANIA

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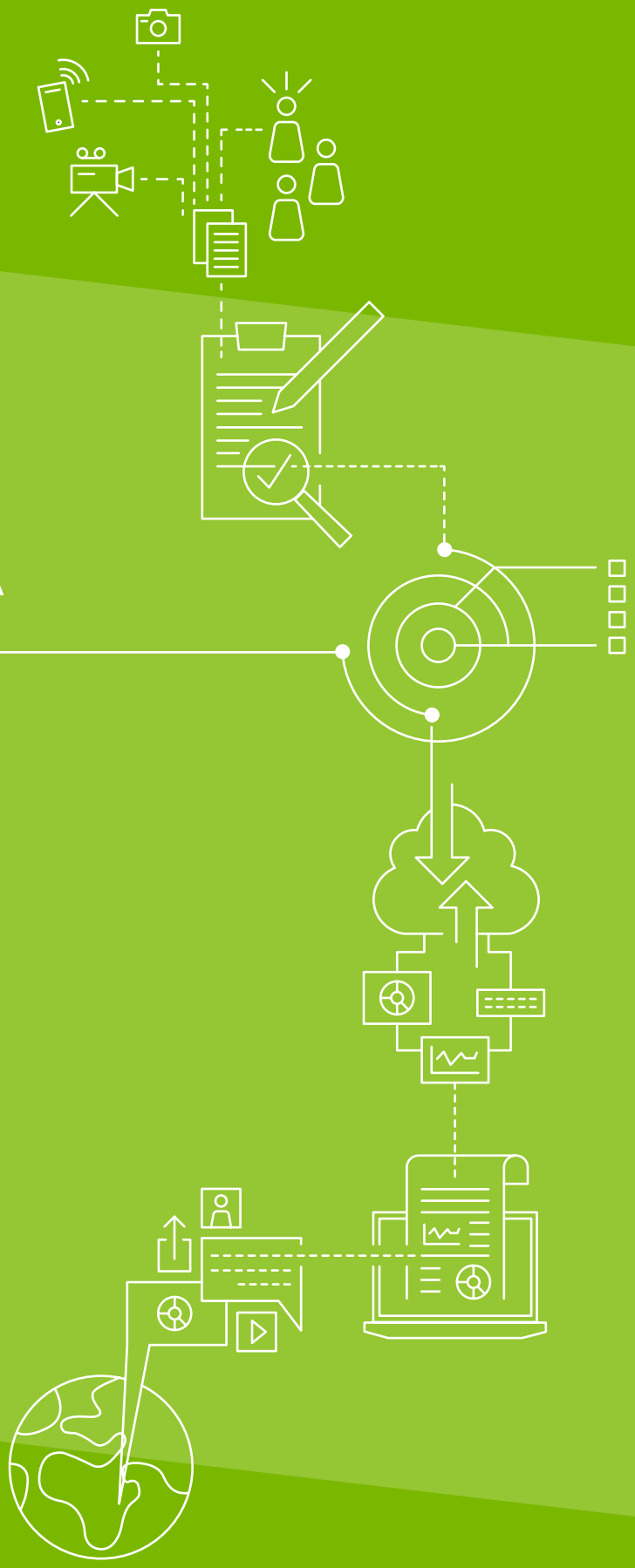

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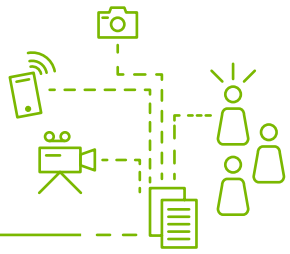

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EXECUTIVE SUMMARY

The past decade brought, along with the digital revolution, growth in access to online information available for public consumption. This increased both the demand and supply of training on tools and techniques for data-driven journalism.

Over the last few years, conferences, hackathons and bootcamps have become the common forms of data journalism training globally. Journalists are now gradually catching up with this vast array of newly available information, with the aim of leveraging these changes for new journalistic practices in its pursuit of public accountability. But although data journalism training has equipped reporters with a sound set of tools and understanding, there has not been a significant increase in quality analysis and presentation of data in journalism practices globally.

In a moment where fake news and disinformation are easily deployed to malicious ends around the world, it's more important than ever to make the case for good, fact checked, verified reporting and public interest reporting. Data-use is an effective method for combating this trend. Helpfully, there is a recent growth in data availability in national and international contexts that journalists can use as sources in their stories — to provide diverse evidence and sources, to tell unique and innovative stories and to respond to public questions.

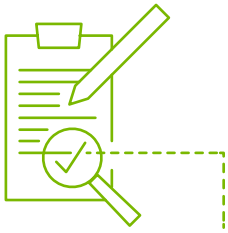
Data journalism involves "using data for the journalistic purpose of finding and telling stories in the public interest" (Berret and Phillips 2016). Journalists are not often data scientists. However, journalists necessarily mediate public information and technical data for larger audiences. Critical analysis is an important part of data journalism training.

In Tanzania, the press transitioned recently out of state ownership to pluralistic media ownership and faces some challenges, such as low salaries for journalists and few sources of funding for new investigative or new styles of journalism, dependence on government advertising revenue and limited training infrastructure. Independent institutes, internationally and locally, are building the capacity of journalists in a variety of ways, while newsrooms and universities provide entry-level journalism training in the country. Nevertheless, there is a gap in the training available as regards specialized knowledge of technical issues, while targeting the necessary skill sets to enable and sustain high quality and balanced reporting on niche issues.

Journalism in Tanzania is facing a critical juncture as newsrooms grow their digital presence but face revenue gaps, in part due to limited online advertising in a market saturated with print government advertising. To harness this change, media houses will have to troubleshoot how to differentiate themselves from other popular channels of news distribution such as WhatsApp and Instagram. According to a recent study on the state of journalism in Tanzania, there is a high quantity of reporting on events, many articles with single sources and few articles putting stories into context (Spurk and Katunzi 2018).

Media houses and journalists continually express an interest in growing data journalism capabilities. However, the successful forms of diffusing data in newsrooms and determining relevant content management systems for Tanzanian audiences remain uncertain.

This report looks at existing models of data journalism capacity building and explores outstanding challenges to increasing data journalism skills. Obvious factors, such as time and funding, are more salient in countries where independent journalism ecosystems are young, underfunded and self-censored. To grow the presence of data journalism in newspapers, radio and television, it is important to learn from capacity building interventions in the past, and to understand the expectations of the media industry. Journalists in Tanzania think critically about their roles and are eager to inform the public and hold public figures to account. A variety of factors must coalesce in order for data journalism to grow and be sustained in newsrooms across the country.



KEY FINDINGS:

Incentives to adopt data journalism matter, and opportunity costs need to be balanced carefully:

- Journalists learning data-use should be interested in using data for public interest reporting to build trust in their newspaper and reporting as an advantage in growing a reputation for professionalism;

- Editors and publishers must see that data journalism can contribute to the newsroom's business sustainability. Given the time and capital investment to build data-use into newsrooms, data trainers must highlight the return on investment. A selling point might be that data journalism provides stories that distinguish it from the rest of the media market. Data-driven fact-checking journalism models such as PesaCheck are an important role model for catalyzing evidence-based journalism that otherwise encourages political standoff through "he said/she said"-style reporting;

- Yet data journalism requires time to compile, assess and analyze data, and strictly evidence-based inputs into political debates may not be sexy or grow readership in fledgling media houses. The degree of public interest in analytical journalism may hinder the business case for a greater uptake of data journalism training;

- Data-use is in reporting must still start with a story or hypothesis, as opposed to being about the data point itself, ensuring optimal relevance to audiences;

- It is important to proceed with caution in assuming sustainable uptake in data journalism from short-term training modules. Data journalism training must address skill sets and tap into journalists' eagerness to produce public interest pieces;

- Monitoring and evaluation are the primary ways the development community and media industry can know how effective an intervention is, and how much it shapes journalism culture and how to optimize future interventions. Such evidence is lacking from current and previous data-use projects for journalists. Evaluations are helpful in making the business case for a particular style of reporting or investment.

It is key to manage expectations about the goals data journalism can achieve for media companies as well as society at large:

- Data journalism is not merely about tech and visualization; it involves all facets of quality journalism: critical thinking, quality writing, working off hypotheses, verification of facts from multiple sources and subject matter specialization, each informed by data-driven analysis;

- Data is just one component of successful and accountable journalism. Data-driven journalism is a part of a newsroom's reporting assets, but it is not the whole. If policy change is the ultimate objective of an organization, data journalism may not be the only solution or route to sustained audience engagement and subsequent policy change;

- Data journalism in countries evolves in different ways over time, but evidence suggests that normalizing data-use into everyday reporting is an important development that will outlive individual data-specific projects.

Data trainings must be catered towards the work routines and needs of journalists, and should take into account how different media business models may support their uptake:

- Integrating data-use into newsrooms depends on the form of media (radio, TV, digital or print) and the relevant business model, e.g. a popular radio station with a popular political talk show might best use a data-driven fact-checking desk to support these broadcasts;

- Digital convergence demands consideration as certain data-driven stories may only be told using tools or multimedia, for example a forthcoming pilot project on visualizing where tax dollars are spent in Tanzania;

- The community of practitioners and academics has little evidence to suggest that data specific dashboards or major data liberation initiatives make any major impact on journalism use, and ultimately on whether they shape public opinion;

- Data liberation efforts have grown dramatically, making available to the public far more data points. For example, resource projects, an initiative launched by the Natural Resource Governance Institute (NRGI), provides the public access to $500 billion in disaggregated amounts paid by international oil companies to governments and government entities in resource rich nations around the world, including Tanzania;

- Journalists in Tanzania do not have the time to spend deciphering spreadsheets. Partnerships with open data initiatives enable journalists to use readymade data analyses to support existing story ideas. Some examples of this success include Wazimap and HuruMap, Pesa Check and resourceprojects.org;

- However, the impact of enabling tools and webpages is not clear due to limited available evaluations and may not be a panacea for scaling or mainstreaming data journalism;

- Lessons from media training efforts have established consensus that short-term workshops are not sufficiently addressing the needs of journalists and newsrooms, that the effectiveness of media training efforts needs to be more systematically monitored and evaluated, and that some interventions may be harmful when subsidizing data-use investments without adequately measuring their market viability or assessing alternative reporting innovations;

- Technological tools to embed data journalism in newsrooms are often built with neither the work routines of local journalists in mind, nor an understanding of the constraints of the digital infrastructure journalists are using. Further research is needed to understand how existing technological tools address the needs of journalists and whether bespoke solutions should be developed for individual newsrooms;

- Newsrooms that take up data journalism in-house are often those with a large readership and successful business model that are willing to experiment. In other cases, a younger outlet may operate with a data-driven reporting niche that sells or distributes data-driven stories to bigger media outlets.

Legal, political and social contexts influence journalism practice, the nature of reporting and the use of official figures to support media claims:

- Historical journalism conditions in the form of training infrastructure, media capture and shifts in privatization impact the current state of journalism;
- Legislation on the use of official statistics, Internet use and regulating media practitioners is important to ensure information is used correctly. However, it can be a source of intimidation, for instance to trainees unsure of how to comply within their reporting and research. Moreover, when the terms of legislation are ambiguous, journalists may be uncertain how their statements might be interpreted and will err on the side of caution and self-censorship;
- Data journalism can balance and level sensationalist news. Reporting on popular political debates with data-driven analysis can be effective and audiences will grow trust and confidence in the news outlet.

RECOMMENDATIONS FOR DATA TRAINERS (SEE APPENDIX A):

Manage expectations and highlight the relevance of data journalism:

- Data trainers must have clarity around their vision for policy change and ask themselves how and if data journalism is a way to achieve this. A vision is vital to ensuring journalists' commitment to, and ultimately the sustainability of, the training itself and whether it continues once the trainer leaves;
- Data trainers should clarify the relevance of data for journalistic work, and design their training sessions to identify and overcome perceived obstacles of journalists to engage with data;
- "Journalism is about people" and needs to touch lives in order to be relevant for the readership. This puts the onus on data trainers to emphasize how journalists humanize data, making it relevant to people's lives;
- Targeting the right journalists is imperative to producing sustainable data-use cultures among journalists. Not everyone necessarily needs to know data journalism, and over time other journalists may learn the benefits of using good data effectively in their stories;
- It is vital to evaluate data journalism training projects. Responsible evaluations show whether an approach is sustainable and achieving its ends during and after a project period. There remains skepticism about the impact of short and mass-interested data training projects due to the limited frequency and quality of reporting with data;
- Data is helpful for explaining events and trends in society, and getting beyond the facts of a case. This requires a broader change in journalism training agenda and culture, whereby reporters are interested in context and depth to effect change and inform.

1. https://www.kbridge.org/wp-content/uploads/2018/04/Guide-3-Best-Practices-for-Data-Journalism-by-Kuang-Keng.pdf

Study the media market, journalistic practices and culture, as well as stakeholders:

- Any program designer must do a stakeholder analysis of the environment for journalism practice and training, and identify organizations, their work routines, individual journalists, infrastructure and culture. This process would also benefit from understanding where infrastructure such as donor-funded platforms and dependencies exist as a result of direct aid;

- Needs assessments should determine how data-literate journalists are before introducing tools such as Datawrapper, Infogram or Flourish Studio, which enable innovative ways to collect data and tell stories with them;

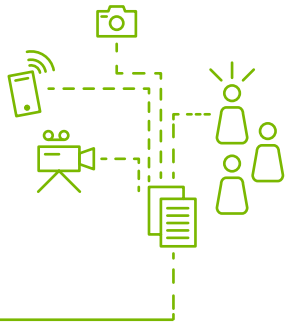
- Media houses as a unit are helpful institutions in which to pilot data-journalism mainstreaming in-house, and have the capacity to sustain data-use beyond individual reporters. Partnerships enable effective arrangements for data-use training;

- Data trainers should identify and build on existing networks and communities of practice to spread data journalism. This includes investing in individuals who champion data journalism, as well as news organizations that are able to include digital media in their media portfolio. It is important to target change agents within newsrooms who are role models and a point-of-contact for other journalists planning data-use in their reporting. Harnessing existing projects and initiatives is a helpful way to catalyze and diffuse innovations in accordance with journalistic practice, as well as cultures of media consumption;

- To engender newsroom uptake of data journalism, a program needs specific targets;

- Journalism trainings in general, and especially those innovating on existing methods, must clarify characteristics of high-quality reporting, including impartial reporting and using multiple information sources to corroborate and contextualize a story. If quality reporting and analysis is without balanced and objective coverage, their journalism could be invalidated by alleged partiality.

Following the findings, the report outlines a set of questions to be asked of the intervener and general recommendations that should be heeded before approaching data journalism training in Tanzania and countries with similar contexts. This report hopes to augment current data-driven journalism training techniques. It describes the state of data journalism training interventions and latest insights garnered as regards program design. Yet it also sets expectations for training institutes and capacity building models that are brought in from other contexts to promote a realistic approach to growing data journalism use in Tanzania.



ACRONYMS

BBCMA	BBC Media Action
CfT	Code for Tanzania
EITI	Extractive Industries Transparency Initiative
ICFJ	International Center for Journalism
ICIJ	International Consortium for Investigative Journalism
MCL	Mwananchi Communications Limited
MCT	Media Council of Tanzania
NGO	non-governmental organization
NRGI	Natural Resource Governance Institute
OGP	Open Government Partnerships
RTI	Right to Information
TAMWA	Tanzania Women's Media Association
TCRA	Tanzania Communications Regulatory Authority
TMF	Tanzania Media Foundation

DIFFUSION OF DATA-USE IN JOURNALISM PRACTICE IN TANZANIA

INTRODUCTION

Data journalism is the use of data to find and tell stories relevant to the public interest. These stories should conform to the relevant media market. How can organizations and training institutes best support data journalism? And how are these models best contextualized in their respective media markets? This report seeks to address the challenges to data journalism uptake in Tanzania and to ultimately inform strategies to increase data-use in newsrooms.

The author looks at existing models of data journalism capacity building and explores challenges to increasing data journalism skills. To grow the presence of data journalism in newspapers, radio and television, it is important to learn from past capacity building interventions. Media development plays a key role here. Media development describes the "evolution and change in the fields of news media and communications".[2] This includes the process of capacity building for journalists, editors and newsrooms. Global and domestic actors are involved in media development. They include governments, associations of media practitioners (e.g. Media Owners Association of Tanzania, Media Council of Tanzania), local civil society and advocacy groups, as well as international donors and capacity building organizations.

This understanding of media development encompasses change due to rule of law, freedom of press, education systems for journalists, journalists' capacity and business environments (ibid). This holistic approach to media development underscores the importance of considering multiple factors in managing outcome expectations when approaching media development institutionally. This understanding of media development emphasizes the need for clarity when determining objectives and outcomes of development interventions. If heightened awareness of climate change is the organization's goal, this is different than aiming to grow the ability of journalists more broadly to report analytically with new tools and skill sets. The distinction between forms of media development interventions often depends on the objectives of the supporting party. A donor may seek more accountability of revenue management through data-use in newsrooms while a managing editor may seek more objective journalism relevant to their audience.

The media industry has its own concerns that need to be taken into account. Journalists in Tanzania think critically about their roles and are eager to inform the public and hold public figures to account. Newsroom leadership must weigh the value proposition of data journalism against opportunity costs.

Challenges such as time constraints as regards running data analyses or dependency on donor funding play an especially important role in countries in which journalism ecosystems are young and underfunded. A variety of factors must coalesce in order for data journalism to grow and be sustained in newsrooms across Tanzania.

This project seeks to reflect on the disruptive potential of the digital revolution, while placing it realistically in the day-to-day journalism practices in Tanzania. Online content distribution plays an increasingly important role in shaping media business models and the way data journalism is distributed and verified. In light of this, one entry point for this study is technology and innovation diffusion in different media systems: their macro issues such as politics, the legal framework and historical influences and micro problems such as data literacy.

2. https://www.cima.ned.org/what-is-media-development/

Scholars have criticised an overly enthusiastic appraisal of the media's role as a panacea for development (Ronning 2009). Journalistic practice is shaped by opportunistic needs of the media industry to increase readership and advertisement sales, which may conflict with the goals of the governance community at large (Stoneman 2015). Nevertheless, to enable better quality and professional journalism, questions of media governance and development are imperative, such as freedom to access information, balanced and transparent access to government advertising, and treating journalism as a public good that must be widely accessible.

In Tanzania, journalists must consider a variety of factors throughout their practice. For example, are salaries incentivizing industry growth or job mobility, which may drive learning of the specialized skills required for data journalism? Is editorial management interested in investing the time and infrastructure necessary to support data journalism and fact-checking? Are Tanzanian audiences receptive to reporting that can be used to inform governmental and civic accountability mechanisms?

The report looks at different challenges highlighted in existing literature[3] to reporting in Tanzania – such as low salaries or poor access to information.

To date, media training organizations, including communications departments and universities, the International Center for Journalists (ICFJ), Code for Africa, BBC Media Action, and others, have trained reporters across Africa. From initiatives there are lessons to be drawn. Existing data journalism trainings tend to overlook media market analyses, uptake of knowledge in training models, monitoring and learning, and embedding data in journalistic practice. Training is important for overcoming obstacles such as gaps in capacity that limit the impact and accuracy of reporting with data.

This report raises questions for donors and media development practitioners in the hope that funding and training reflects media markets and capabilities in Tanzania. Despite expert understanding of the drawbacks of short-courses and forms of data training such as hackathons and data bootcamps[4], there is a gap in practice. Different forms of long-term training and mentorship commitments are slowly becoming international best practices. This report takes stock of these methods in practice to inform media development and data journalism training into the future.

Some outstanding questions the report hopes to lend clarity to include:

- How can international aid best support data journalism?
- What are the barriers for journalists to use data and technological innovations in newsrooms in Tanzania?
- What tech is relevant to the Tanzanian newsroom and worth investing in?
- How successful are open government data initiatives in supporting data journalism practice in Tanzania?
- How can small newsrooms in Tanzania incorporate data?
- How do organizations support the creation of digital cultures in newsrooms of legacy media houses and what impact does this have on the business model of newsrooms?

3. Spurk and Katunzi, 2017
4. http://www.dw.com/en/media-development-from-a-new-angle/a-36230886

BACKGROUND

In Tanzania, the press is young and faces many challenges, including underfunding, dependence on government advertisements and a limited training infrastructure. Independent institutes, internationally and locally, build capacity of journalists in a variety of ways while newsrooms and universities provide entry-level journalism training. Nevertheless, there is not enough specialized knowledge of the technical impediments to new journalism forms like data analysis and collection, Internet bandwidth or usability across platforms and training around them, while targeting the necessary skill sets to enable and sustain high quality and balanced reporting on niche issues. Globally, challenges to media development include obstruction of freedom of expression and freedom of access to information, lack of sound and sustainable financing, and an absence of audience research.[5]

Journalism in Tanzania is at a critical juncture as newsrooms grow their digital presence, but face revenue gaps, such as limited online advertising in a market saturated with print government advertising. To harness this change, media houses will have to differentiate themselves from other popular channels of news distribution, such as WhatsApp and Instagram. In terms of the state of journalism in Tanzania, a recent comprehensive study suggests there is a high quantity of reporting on events, many articles with single sources and few articles putting stories into context (Spurk and Katunzi 2018).

METHODOLOGY

This report uses 47 semi-structured and unstructured in-depth interviews with media development experts and experienced trainers operating inside and outside Tanzania. It draws on interviews with reporters and editors from a cross-section of media houses: FM stations, print and online newspapers and TV stations produced in both Swahili and English languages. Examples include representatives from the major private and public national newspapers and broadcasters, informants from local media development organizations including Tanzanian data trainers and non-governmental organizations. Internationally, informants include Deutsche Welle Akademie, Internews, BBC Media Action, Columbia University Graduate School of Journalism, and the International Center for Journalists (ICFJ).

This report assesses media development models specific to Tanzania and the region by analyzing internal reports, theories of change and expectations. It reviews the state and uses of open data initiatives and comments briefly on existing analyses of Tanzanian regulations related to media, including The Electronic and Postal Communications Act (2017)[6], The Cybercrimes Act (May 2015)[7], The Statistics Act (April 2015)[8] and The Media Services Act (August 2016)[9].

STRUCTURE OF THE REPORT

This report is organized into seven sections. After the executive summary, introduction and methodology, section two is an academic literature review on media development that highlights studies of the inputs to development practice for data journalism training. Next, the study will introduce existing media development models in Tanzania to synthesize lessons learned and the time, style and expectations of these interventions, along with a brief assessment of the journalism context in Tanzania through history. Then the report analyzes the importance of data liberation initiatives and regulatory frameworks to the practices of data journalism. The report then presents use-cases for successful data journalism

5. http://www.dw.com/en/seven-challenges-to-media-development/a-19533127
6. http://habari.go.tz/uploads/documents/sw/1505716716-Online%20Content%20Regulations%20-%2020%20January,%202017.pdf
7. https://rsf.org/sites/default/files/the_cyber_crime_act_2015.pdf
8. http://www.nbs.go.tz/nbs/takwimu/references/The_Statististics_Act_2015.pdf
9. http://parliament.go.tz/polis/uploads/bills/1474021216-A%20BILL%20-%20%20%20THE%20MEDIA%20SERVICES%20ACT,%202016.pdf

interventions, inside and outside Tanzania, from which to draw lessons. Finally, the report will elucidate conclusions and recommendations drawn from data training practitioners, locally and globally, to suggest best practices to the media development community.

LITERATURE REVIEW

Research has examined external factors that shape the way media operate in different political, social and cultural contexts. This framework places data journalism and media development at the behest of multiple factors that ultimately shape the quality of, and opportunity for, data journalism uptake.

To discuss data-driven journalism practice and training in Tanzania, different theoretical debates help answer outstanding questions. The study of data journalism seeks not only to define the practice and its uses in different countries, but also asks questions about what impedes successful data-driven journalism, such as access to data. Literature on technology and innovation diffusion seeks to explain why and how new forms of journalism are taken up in different countries. Scholars of structural conditions and media culture, such as Lohner et al. (2016), ask what shapes journalism practices and the spread of practices in newsrooms, from historical circumstances and growing Internet use to changing political environments and ownership patterns.

In this report, external factors – digital innovations, global trends in training, enabling conditions such as history and freedom of press – are studied to develop a better understanding of the role of data journalism in society and how to optimally grow data-use by infomediaries. Through this framework, the report seeks to contribute to the question of how new ideas spread in spaces where the role of journalism is shifting. It also explores how different inputs – technology and data – are understood in journalism practice and newsroom management.

Journalists remain an important source of government and private sector accountability, especially through a growth in support for investigative journalism by non-profits and philanthropists[10]. Some researchers looked at the link of a free and abundant press and the prevention of famine (Sen 1982) and quicker and better quality government response to natural disasters (Besley and Burgess 2000). The press is also one important actor in the fight against corruption, specifically in the case of Uganda (Nogara 2009). Brunetti and Weder (2003) showed a causal relationship between high press freedom and lower corruption in a cross-sectional study of 125 countries.

WHAT IS DATA JOURNALISM?

“Data journalism is telling stories with numbers, or finding stories in them. It’s treating data as a source to complement human witnesses, officials, and experts” (Howard 2014).

Data journalism is important in an era where fake news infiltrates media ecosystems globally, an epidemic not confined to the 2017 US election. Fake news reaches across topic areas and impacts businesses globally. For example, in Kenya: “beyond the political landscape, these deliberate attempts to disseminate false or misleading stories have seeped through to the corporate world, small business, and media houses”[11]. There is the threat that “low literacy and scarcity of resources contribute to spreading misinformation” (ibid) in contexts like Kenya. Some journalism development organizations, such as Internews, combat this concern by adapting training to such circumstances. For example, they will instruct “local broadcasters on how to question their sources vigorously, and to verify photos and videos shared online” (ibid).

10. https://www.cima.ned.org/blog/new-donor-journalism-relationship/

11. https://qz.com/1176452/fake-news-in-kenya-being-battled-by-startups-like-nendo-pesacheck-and-odipo-dev/

Multiple considerations go into understanding data journalism: the platforms, the audience, type and source of data, and ultimately its relation to the type of story being told with the data. These considerations shape which platforms become most conducive for using and presenting data, and are shaped by who is funding and supporting data projects and who the intended audience is.

"Data journalism combines: (1) the treatment of data as a source to be gathered and validated (2) the application of statistics to interrogate it and (3) visualizations to present it, as in a comparison of batting averages or prices" (Howard 2014: 5). Data journalism has experienced an uptake with an increase in data availability. For example, in the natural resource sector, global governance initiatives such as the Extractive Industries Transparency Initiative (EITI) advocate and work toward transparency and open contracts in the sector. Access to data is also facilitated by websites such as DocumentCloud and resourceprojects.org, having spurred data-driven journalism projects globally.

Is there a link between open data initiatives, open access to information movements, media development and data journalism? Ultimately, use-cases and local narrative contexts shape the relevance and effectiveness of data journalism. According to Jonathan Stoneman, open data advocacy remains outside the remit of mainstream journalists, with their practice often relying on individual FOI requests and creating data sets themselves to fit the needs of the journalist's story. Despite this, and the fact that government datasets are often out of date by the time they are published, journalists are in a position to advocate for more and better open government data (Stoneman 2015).

Successful data journalism training demands a variety of considerations and benefits from studies of the media development industry in general, as well as from the data science community. Training data journalism benefits from systemic process-driven thinking, often referred to as the data pipeline among practicing journalists. The pipeline begins with a hypothesis, and then requires finding and acquiring relevant data sets; verifying the truth of the content by corroborating evidence with experts in the respective field and comparing with different data sets; and ultimately ensuring that the data is presented in an accurate and fair way.

"Data journalism is about more than just publishing stories through digital media, but about developing reporting methods appropriate to the complexity of the world today" (Berret and Phillips 2016: 29). The presence of technology and digital tools in newsrooms is one important facet of data journalism, such as determining the relevant visualization tools given Internet speeds and other factors, but it is not everything. Introducing digital tools is one piece of a bigger equation including such factors as the business case for committing resources to accommodating tools, newsroom sustainability and profitability (Schiffrin 2015b), audience reception of data storytelling methods such as visualizations, and how to immerse a culture of data-use in an investigations team or newsroom at large[12]. This includes the use of tools to support journalists, such as graphs, infographics, charts and interactives (Mair et al. 2017). In India, an ICFJ Knight Fellow hacked newsroom culture to spur the use of digital tools and data journalism while training on the relevant skill sets at *The Hindustan Times* by holding weekly peer-to-peer training sessions called Digital Fridays[13]. Understanding how new ideas are taken up in newsrooms will help identify best capacity building practices.

12. Interview, ICFJ's Ben Colmery

13. https://ijnet.org/en/blog/digital-fridays-innovative-approach-creating-digital-culture-legacy-media-giant

Digital Fridays disrupted traditional models of capacity building:

> Newsroom trainings are usually a push effort. Bosses identify the skill gaps in a particular team, an outside trainer prescribes a curriculum and human resources makes it mandatory to attend. The structure is very much like a class, with a few exercises and maybe even a graded test at the end. (ibid)

In South Africa, innovation occurs in larger media houses, where small media startups lack the sources of reliable data, funding and time to successfully apply data journalism. The South African case shows that large media outlets can be adaptive, using their money and clout to take risks and pursue stories and agendas that small, budget-conscious media outlets are unable to (Schiffrin et al. 2015b: 20). For example, *Eyewitness News* in South Africa was the first media house in the country to use WhatsApp to communicate with its audience (Ibid: 21).

Innovation responds to demands from local journalistic practices and the pursuit of building data cultures.

The ICFJ model is to support Knight Fellows that start initially for one year and involve outreach to different newsrooms. "Fellowships are designed to instill a culture of news innovation and experimentation"[14], thereby emphasizing the ecosystem and reporting culture as the ultimate product behind introducing a fellow. Fellows are determined through a rolling call for proposals from either individual fellows or potential partner newsrooms[15]. The fellow will lead trainings and project development within the newsroom. According to the program's former director, fellows benefit the program by "having people in newsrooms for several days a week for months on end who are going to be able to understand and identify where pain points and obstacles are"[16]. Importantly, the most relevant innovations are generated by and for media practitioners.

Donors are an increasingly relevant and necessary stakeholder of journalism practice and business models, up to and including newsroom innovations, for example, those prompted by the Knight News Challenge, a competition funded by the Knight Foundation. However, the role of donors in journalism is unclear. There are no universally agreed standards of processes or codes of conduct for donors' involvement. There are different ideas of what constitutes media independence when donors get involved in supporting journalism, and ultimately there is uncertainty in terms of how newsrooms can respond.[17]

Seth Lewis has analyzed the Knight News Challenge success stories to draw lessons on the nature of innovation in the journalism industry, identifying a growing tension between professional control and participation (2011). Lewis's findings suggest that successful candidates emphasized aspects of participation and distributed knowledge, such as crowdsourcing, and innovative features not typically practiced by journalists, such as engineering and software development. Regardless, critical stocktaking of the quantity and quality of data journalism growth is still missing. While new methods and models adapted in particular circumstances are important to reflect on, the primary point of intervention should still focus on skill sets and the type of journalism trainees are producing.

14. https://www.icfj.org/our-work/knight/overview
15. https://www.icfj.org/frequently-asked-questions
16. Interview, ICFJ's Ben Colmery
17. https://www.cima.ned.org/blog/new-donor-journalism-relationship/

ENABLING CONDITIONS FOR THE SPREAD OF DATA JOURNALISM

Legislation on the use of official statistics, on using the Internet and on regulating media practitioners is important to ensure information is used in the way it is supposed to be. Democratic access to information is central to the verifiability of public figures that are widely consumed and that will shape dialogue among a national audience. The value of independent statistics is made clear by one of Tanzania's preeminent civil society voices, the Director of Twaweza, Aiden Eyakuze. In a critique of proposed amendments to Tanzania's Statistics Act, Eyakuze pointed out that independent statistics save lives; they can boost the local economy, independent monitors can fill gaps in observing public service delivery, and ultimately "governments benefit from understanding what citizens say they want and need"[18].

For journalists that frequently work with data, it is important to be data literate and to work with statistics carefully. Regulation of information and journalistic practice is shaped by a variety of factors, and not solely with the intent to repress information. In Africa, political hurdles are even more salient. In resource-rich Botswana, the government started a public fund for politicians to sue the media for defamation.[19] "While the evidence that has emerged in recent years strongly supports the connection of open data to economic activity, the role of data journalism in delivering accountability using the data released from these platforms and acquired by Freedom of Information Act requests is central" (Howard 2014: 33).

Obstacles to journalism in Tanzania generally take a variety of forms: a reliance on anecdotal evidence, or the reproduction of press releases, or meeting deadlines with weak stories in newsrooms under pressure. These issues are symptomatic of a young media ecosystem. There are many reasons why data journalism and innovations are not continually practiced after traditional data training models such as hackathons and data bootcamps. Lohner et al (2016) set out a list of attributes that shape journalism practice in a given country to better understand the overserved lack of uptake. These include historical developments, the political system, political culture, media freedom, level of state control and regulation of media by the state, media ownership and financing, structure of media markets, orientation of media, political/societal activity, journalism culture, and journalistic professionalism. Specific to Tanzania, conditions affecting journalists include low salaries, time constraints, editorial interference, poor education infrastructure, and limited access to information and security when reporting.

As Hasty (2005) acknowledges, "everyday practices of journalism are shaped by historicized, cultural understandings of political authority and resistance, as well as notions of African sociality and discursive property." In Ghana, the relationship between media and public officials is shaped as favors are exchanged and state-owned media is less likely to report negatively on the government, thereby tacitly accepting corrupt journalism practices. Media development practices must respond to local media cultures, and increasingly to changes in international media makeup.

As Internet access in Africa incrementally grows – with recent figures observing Internet penetration growing from 34 to 40% between 2015 and 2016 in Tanzania[20] – media outlets are slowly orienting to online audiences. Legacy newsrooms and small media outlets will still respond to immediate media market needs, as advertisement is still print driven. However, it is increasingly shown that online platforms, such as Facebook, WhatsApp, and Twitter are more a source of content distribution as opposed to content production (Wyche et al. 2013; Wyche et al. 2014). This suggests that despite innovations, digital has not revolutionized journalism practice.

18. https://oxfamblogs.org/fp2p/tanzania-is-about-to-outlaw-fact-checking-heres-why-thats-a-problem/
19. http://www.sundaystandard.info/government-use-public-funds-silence-criticism
20. https://www.tcra.go.tz/images/documents/telecommunication/CommStatSept17.pdf

DEVELOPMENT OF JOURNALISM IN TANZANIA

The media has fallen under the regulatory influence of a historically significant central government. Upon independence, the first president of Tanzania, Julius Nyerere, referred to as Mwalimu, or "teacher", enacted a vast program of state building based on the socialist concept of Ujamaa (familyhood). Initially, Nyerere adhered to British press ordinances, even though he had been a victim of colonial-era sedition laws (Sturmer 1998, 164). This laid the groundwork for the institutionalization of government libel and falsehood prosecutions, in a climate of limited tolerance of criticism (ibid).

In 1992, Paul Grosswiler conducted a study of 50 news and radio journalists in Tanzania to examine the changing government-press philosophy. He found that a "third way" had emerged, "with a mixture of socialist, traditional, revolutionary and Western philosophies that are incompatible with authoritarian or development media philosophies" (Grosswiler 1997, 102). In effect, Tanzania's "socialist media policy" under President Nyerere was designed to achieve "cultural autonomy and minimize foreign cultural influences" (ibid).

In 1976, the Newspaper Act was passed, which still functions in its original form today. In concert with other legislation condemning criticism, which is said to be in support of nation building, the president is given the power, among others, to bar any publication that jeopardizes national interest, prohibit the importation of publications detrimental to public interest, and ban newspapers for not being in the interest of peace and good order. Ministers can cancel the registration of a newspaper if deemed unlawful or incompatible with peace and good government (ibid:169).

When the press liberalized in 1992, it was hailed as an important democratic moment. However, that does not necessarily mean the increasing plurality was diverse. "Where the media are genuinely liberalized it means that they are released from the strictures and control of that state; that they start to comprise different types of ownership models (commercial, community, public etc.)... as well as representing a diversity of opinion, including the voices of minorities and marginalized groups within society" (Myers 2014: 25). It is abundantly clear that a growth in liberalized media enabled democracy, but arguments to the contrary persist, namely that a growth in privatized media houses, in contexts of paternalist power structures and immature democratic politics, "produced a largely co-opted media that was unable to perform a watchdog role" (Myers 2014: 27). The role of media in 1990s Africa is complex with unclear consequences, and remains so. In Tanzania, poor media practices are an important excuse for restrictive legislation. "The majority of journalists lack the basics. As a result, we have personnel who do not fit in. This bill has come to take care of this problem", stated Justice Affairs Minister Harrison Mwakyembe (da Silva 2017). "Personnel" oftentimes equate to voices in opposition to the ruling party, despite there being real concerns over professionalism in the industry.

Quality and space for reporting shape the journalism ecosystem. For example, one study found in 2017 that "radio news is of low quality compared to newspapers and TV stations", a worrying sign as "radio news is listened to by large parts of the population" (Spurk and Katunzi 2018: 5). Another concern revolves around reporting on political issues. "Politics is hardly covered by many media houses, which points to a lack of debate culture, [and a] lack of culture of having diverse opinion" (ibid). More recently, the legislation has been used by to shut down newspapers for criticism of the government, described as "inflammatory" reporting (Carlitz and Manda 2016). Post-independence nationalism and ideology inform the contemporary media regulatory environment and conceptions of freedom of expression.

> "Tanzania illustrates how local ownership predominated: In the first eight years of liberalization (1992–2000) the names of private media owners in Tanzania were all Tanzanian. Three business groups dominated at the time—IPP Media (Reginald Abraham Mengi), Habari Corporation (Jenerali Ulimwengu and Giddeon Shoo), and Business Care Services (Richard Nyaulawa). Their business interests were not limited to media but included cosmetics, soft drinks, insurance, and banking and, tellingly, their political affiliations tended to be in favor of the ruling party. The political leanings of media owners were significant. Many "independent" newspapers and broadcasters in the early 1990s took sides once multiparty participation in politics was allowed, publicizing and championing opposing political parties. The new private media profited from printing or broadcasting the party manifestos of political candidates. Incumbent governments often withdrew advertising by state enterprises from opposition newspapers, thereby effectively weakening opposition voices through economic means." (Myers 2014: 8).

On top of this, journalists oftentimes face low salaries, and without incentives to specialize and learn in the form of income or job mobility, data journalism training may be idealistic or lead to journalists departing the industry. In a 2017 Yearbook on Media Quality in Tanzania produced by the independent Media Council of Tanzania, there is a recurring demand to improve the quality of reporting[21]. A finding of the report noted that

> "too many articles (over 50%) were triggered by organized events…too many articles with [only a] single source; few articles (only 24%) covering root causes of events of issues or the history to an event; too many articles (72%) with just one viewpoint; few articles (25%) putting figures into a good context; too many articles with not good structure, i.e. logical links between the different paragraphs, were missing and little probing in interviews and radio programs" (Spurk and Katunzi 2018).

These are the present hurdles that media development institutes and training projects emerge into. There are demands for higher quality, but the baseline quality per the above-mentioned report presents difficulties to training institutes. Journalism cannot be seen in isolation of one successful intervention or another, but as a broader movement that needs to grow, professionalize and maximize independence. Data journalism is one step among many in solving some of the aforementioned challenges. Moreover, as we see below, there are important cases of data journalism interventions in Tanzania and beyond that leave an optimistic picture.

The state of the media is an important reflection for media development interventions. As data journalism requires enhanced storytelling, management buy-in and audience awareness, reflections on trends and professionalism are helpful in guiding project and strategies. It guides both the context in which reporters operate and the historical traditions younger journalists assume. Moreover, when shaping interventions, especially specialized skills like data journalism, reflecting on the interests of media and what guides the ultimate product is important to manage expectations.

21. mct.or.tz/index.php/home-page/598-yearbook-on-media-quality-is-out

MEDIA DEVELOPMENT INITIATIVES IN TANZANIA

Existing media development models in Tanzania illustrate the different styles of interventions into the media landscape. While not exclusively data-focused, some support mass-market journalism, others specialized skills and thematic training; some take a holistic approach to supporting media houses, and others use variable forms of interventions such as institutional grants, embedded mentorship, or product development. The brief guidance below takes stock of the existing models, to inform where programmatic synergies might take place and to understand what practices work in Tanzania. This also affords media trainers understanding of where potential redundancies are and what artificial market dependencies are promoted with certain training styles.

BBC Media Action (BBCMA)

BBCMA introduces knowledge and ideas to existing radio stations and seeks to effect change in society and ultimately reduce poverty and support people in understanding their rights. Topically, BBCMA supports media reporting on improving child nutrition and supporting society to build resilience to climate change. Through public service radio shows, BBCMA supports impartial material, informs, entertains, and educates audiences.

BBCMA provides journalism training in the form of support to radio stations across Tanzania by choosing partners with whom they seek to transfer skills. With free airtime from local FM stations enabled by association with BBC, BBCMA provides a sustainable approach by offering the highest-quality broadcast support in the form of a long term series, coupled with coverage of important development issues.

One example of BBCMA's successful development programming is *Haba na Haba (Little by Little)*, a radio show broadcast for free by Clouds Media in Dar es Salaam. The 30-minute show in association with BBC takes the opportunity to train journalists and to speak about development topics. The broadcast aims to bring different parts of society to the table, bridging the gap between national and subnational leaders and ordinary Tanzanians[22].

Peace and Election Program (Internews)

Internews' Peace and Election Program seeks to grow media's capacity to report on elections and referenda. This is characterized as a periodic, one-off training that tackles a thematic issue as it arises over time – such as elections. Peace and Election Program in Tanzania hopes to strengthen accurate reporting on such events. Specifically, Internews is "working to train and mentor journalists on election and post-election coverage" with an emphasis on election issues affecting women[23].

22. bbc.co.uk/mediaaction/where-we-work/africa/tanzania
23. https://www.internews.org/taxonomy/term/74

This model builds important literacy around present subjects, but is without a calculus for sustainability in terms of how election-reporting skills will manifest or be continually monitored after an election cycle.

Internews Tanzania is growing into a newer model to engage community-level radio stations. According to one of the facilitating media house partners, Internews will be providing funding directly to a major media outlet with a national reach who will then co-partner with 20 community radio stations. A major impetus of this project is to bring content produced locally by community radios to a national audience. Journalists at the community radio stations will be mentored by Internews' network of experts and national partners will provide access to a broader audience.

Code for Tanzania

Code for Tanzania (CfT) is an open data and civic technology initiative that builds communities and has targeted capacity building for data journalism. It is "a grassroots-driven and demand-focused movement that seeks to build active citizenry by creating new avenues for civic engagement to help shape better public governance and public services"[24]. CfT has developed civic technology for better development. One example is HealthTools, which gives citizens the option to ask whether you are being overcharged for medicine, where nearby medical specialists are and to determine the reputation of your local doctor. This tool benefits from official sources and crowd verification.

CfT builds data journalism capacity from scratch in newsrooms, responding to native demands, such as developing the relevant content management systems (CMS) to handle innovations such as data visualization tools. However, CfT, according to their Tanzania-based staff, is invested in embedding these capabilities to outlive CfT's intervention. As such, newsrooms must invest in these products and not rely strictly on donor funds. There is the added benefit of greater buy-in by newsroom management and staff reporters who will not allow it to phase it out once CfT departs.

Another component of Code for Tanzania's work is to build a community of data practice. Liberating data and developing civic technology demands engaged practitioners and CfT convenes training in the form of bootcamps, data quests, workshops, and meetups to build strong teams and develop a sense of community. CfT benefits from integral partnerships with local newsrooms and international foundations such as International Budget Partnership, International Center for Journalists, and The World Bank Group.

24. codefortanzania.org

Tanzania Media Foundation (TMF)

TMF seeks to improve quality and quantity of media content across Tanzania through the provision of training and grant facilities. Training and grants fill both an important gap in journalism literacy across the country as well as the limited largess of newsrooms to fund long-term reporting projects.

TMF offers a variety of grant facilities including a rural dispatch grant that offers around 60 grants per year to journalists that will produce investigative and public-interest stories; a fellowship grant with two separate targets: mid-career journalists and young and upcoming journalists, each of whom will report on development-related issues such as health, agriculture, and road safety; a Content with Transformation Grant that aims to grow sustainable, quality content by way of grants to directly to individual media houses; and a Strategic Commissioned Grant for a small number of senior journalists to produce analytical and investigative journalism.

In one case, TMF supported a journalist with a reputable mentor to cover the local impacts of coal mining in the Ruvuma region, unearthing issues related to clean and safe water. The journalist's report ultimately drew government actors' attention and there was a subsequent intervention on behalf of the villagers.[25]

Lessons from media development models in Tanzania:

1. It is important to consider the dependencies donor funds and media development create in media houses and how major gatekeepers to funds for investigative pieces or new innovations shape stories and the trajectory of the news business nationally. While media organizations are well placed to think outside the box and look at the broader picture, newsrooms inevitably have more stake in audience outreach and have a better sense of what skills, themes, and products will last.

2. To spread ideas, you must invest in both individuals who champion data journalism and its complexity and news organizations that are able to innovate. Especially in Tanzania, it is important to take advantage of networks and communities of practice. Harnessing existing projects and initiatives is a helpful way to catalyze and diffuse innovations and expand in a culturally and locally relevant way. This avoids the threat of imposing solutions that may be unsustainable or a product of anachronistic assumptions.

3. Training is best embedded in an understanding of media culture locally and is best placed when responding to demands, where buy-in from newsroom management is key to sustainability.

4. Program evaluation is integral to future successful projects, because getting data journalism right is difficult.

25. https://www.tmf.or.tz/about-tmf/success-stories/194-effects-of-coal-mining-to-residents-surrounding-ngaka-mining-in-ruvuma.html

5. With a growth in reliable monitoring and evaluation frameworks, it is important to keep taking stock of its effectiveness and ensuring that institutional grants and newsroom support is accountable. Important to this is having a relevant "theory of change" to apply to media development programs. If innovation in tools is what you want, how does that fit into the working theory of change? If an uptake in data access is what you want, how can this be fulfilled?

6. Recurring themes within this model include: (1) work closely with editors; (2) avoid creating artificial market dependencies with grants that may not last and will impact long-term brand development of news outlets; and (3) media development interventions require creative thinking when seeking sustainable quality journalism uptake in order to shape public interest in accountability and development.

REGULATORY FRAMEWORKS AND OPEN DATA

Both regulatory frameworks and availability of data dictate how much and what data journalists use in their reporting practices. One major impediment to data access is the lack of quality control in how the data is published publicly – if data is missing or if the comparative statistics are in terms readily digestible by the public. Regulatory frameworks are important for spelling out clearly the expectations of data analyzed and published by independent parties. Two considerations in terms of legislation are reducing ambiguity of language and liability, and also training journalists in younger reporting ecosystems to think twice before publicizing statistics that may be misleading, incorrect, or a product of speculation. Data and legal literacy may be useful methods to abetting these issues.

Solutions for accessing and opening data are increasingly organic to the journalism industry. In the past, a major hurdle was disaggregating data in PDF format. However, solutions have been sought and implemented by journalists and data scientists. The development of digital product innovations such as Tabula and DocumentCloud have offered solutions. In 2009, a group of journalists developed and launched DocumentCloud to allow users to upload, analyze, annotate, collaborate, and publish primary source documents[26].

Regulation of data-use and journalism

Legislation on the use of statistics, on using the Internet, and on regulating media practitioners is important to ensure information is used the way it is supposed to be. For journalists that frequently work with data, it is important to be data literate and to work with statistics carefully. Legislation is as important in setting this tone as is training on how to access and use data responsibly.

However, it is important to have clear guidelines for what data may be used publicly to reduce the potential for precedent to shape legislation. When legislation is ambiguous, journalists may be uncertain of how their statements might be interpreted and will err on the side of caution and self-censorship. The case below demonstrates the potential fallout from misinterpretation.

One of the major sources of information disclosure is Right to Information (RTI) legislation that Tanzania has recently adopted. In other countries on the continent, such as Burkina Faso, freedom of information laws have been passed, but for the purposes of journalism, "officials pay almost no heed to it"[27]. A Burkina Faso journalist noted this was due to a closed administration and forms of disguised intimidation,

26. https://www.documentcloud.org/

27. https://www.icij.org/blog/2018/02/work-high-tech-global-project-limited-internet-phone-connection/

where reporters may unexpectedly be asked to appear before court[28]. This underscores the question of implementation gaps and how policies may be a veneer for an otherwise closed or inaccessible environment for journalism. In Tanzania, RTI is an important step to enabling journalism practices and it is yet to be shown how effective journalists are in using it to their benefit.

In early January 2018, the Tanzania Communications Regulatory Authority (TCRA) imposed fines on five television stations: Star TV, Azam Two, Channel 10, ITV, and East Africa TV[29]. The fine amounted altogether to 60 million Tanzanian Shillings for airing alleged "seditious information" in contradiction to the Broadcasting Act of 2005[30]. The television stations reported on flaws in the 2017 by-elections with allegations of human rights violations and abductions of unidentified people[31]. Allegations leveled by the TCRA took the form of coverage threatening peace and security, as well as a lack of covering balanced viewpoints in their reportage[32].

Two lessons may be drawn from this case. First, in light of its impact on multiple media houses, perhaps with more clearly phrased legislation on the parameters of "seditious information", this fine might have been avoided. Fines against media houses may do damage to their financial sustainability and preserving their integrity and media business model requires legal literacy from media practitioners that benefit from unambiguous legal frameworks. Another lesson is that media capacity building initiatives must have a well-evaluated baseline of reporting quality in the contexts they operate. If quality reporting and analysis is without a balanced report, their coverage is invalidated and subject to allegations of partiality. Even when training on data, emphasizing impartiality and achieving a confluence of sources through which to corroborate and contextualize a story are of paramount importance.

LEGAL FRAMEWORKS AND JOURNALISM

In Tanzania, this is reflected in some recent legislation that illustrates the importance of unambiguous legal language and the incorporation of legal literacy training in capacity building interventions. In 2017, the TCRA publicized a draft of the Electronic and Postal Communications (Online Content) Regulations. The draft regulations focus on the producers of online content, such as bloggers, online forums and social media and how content providers will monitor prohibited content and adopt best practices. Twaweza, an independent East African initiative, published an analysis of the legislation, noting that it could "prohibit online anonymity in Tanzania…that has obvious and serious implications for whistleblowing"[33]. According to the report, blog moderators will be required to review every comment posted to make sure it meets requirements – that comes at a staffing cost for websites[34]. The International Center for Not-for-Profit Law noted that the current legislation is ambiguous in its definition of "restrictions on content". The threat is that this may be used to "limit expression of opinion, dissemination of ordinary news, criticism of the government and other legitimate forms of expression". Definitions of practitioners are also unclear. The regulation

> "requires every 'blogger and online forum' to register with the TCRA. The definition of 'blogger' is extremely broad and essentially covers all journalists, social media users, businesses (both public and private), and civil society organizations that publish online. The right to express

28. Ibid
29. https://cpj.org/2018/01/tanzania-slaps-fines-on-5-tv-stations-after-they-r.php
30. http://www.thecitizen.co.tz/News/1840340-4249954-3t0x4rz/index.html
31. http://www.thecitizen.co.tz/News/Poll-flaws-bad-precedent-for-future-elections--says-LHRC/1840340-4210078-55eds8/index.html
32. https://cpj.org/2018/01/tanzania-slaps-fines-on-5-tv-stations-after-they-r.php
33. http://www.twaweza.org/go/analysis-of-online-content-regulations
34. ibid

> oneself via the Internet belongs to every individual within a State's jurisdiction and requiring registration infringes upon that right". (ICNL p4)

For journalists to access data and report without self-censorship, they need both the right tools for balanced and accurate reporting and a reporting ecosystem that does not leave their fate uncertain.

In 2015, Tanzanian parliament passed the Statistics Act. The Statistics Act is an important check on the misuse and presentation of data in the public domain. The Statistics Act sets out a legal framework for using data publicly. The Act seeks to address an important concern: the validity of third-party statistics and the potential for misuse of data. Under the Act, the importance of the National Bureau of Statistics (NBS) is manifold: operating as the arbiter and central distribution mechanism for publicly consumed statistics. Their mission is to "produce quality official statistics and services that meet needs of national and international stakeholders for evidence based planning and decision making"[35]. On the website, NBS provides a data portal with topical distinction, such as GIS data, census data, socioeconomic data, and other categories.

The legislation is not precise in defining what may be determined an "official statistic", but the accepted practice, according to journalists, is to refer to official data only when processed by NBS. All other data presented publicly requires clear citation in terms of its original methodology and source.

According to a Tanzanian organization, "the Act has potentially very significant implications for anyone working with statistics in Tanzania", including media and civil society. Again, a concern over ambiguity in legal language is raised. The report notes that it is unclear "who is allowed to generate statistics and what authorization is required" to do so[36]. Moreover, the legislation emphasizes restrictions on publishing contentious statistics, making it illegal to publish "false" statistical information or that which "may result in the distortion of facts" (ibid). The report notes an absence of traditional methodology of data analysis where "disputes around statistics are an essential part of academic and policy debates".

In 2015, the Cybercrimes Act was passed in order to regulate expression on the Internet. In an analysis of the Act, Bussiek (2015) discerns permissible versus questionable restrictions by comparing the Act to international legal standards set forth by institutions such as Special Rapporteurs to the UN Human Rights Council and the African Court on Human and Peoples' Rights, which is based in Tanzania. Permissible restrictions of expression prohibited under international law include child pornography, the incitement to commit genocide, and racist material or any form of racial discrimination (Bussiek 2015: 4-5). Those questionable restrictions laid out in the Act include:

> Section 8 makes it a punishable offence to "obtain computer data protected against unauthorized access without permission". This section is presumably aimed at criminalising 'hacking', but it fails to provide a public interest defence for cases where this type of action takes place for legitimate purposes, such as investigative journalism or research. Section 16 makes it an offence to publish "information, data or facts … in a computer system where such information, data or fact is false, deceptive, misleading or inaccurate". In Uganda, the Supreme Court in 2004 pronounced unconstitutional a similar law that banned the reporting of "false" news likely to cause "fear and alarm" (introduced in 1954 by the British colonial masters) and struck it from the statute books"...
>
> In practical terms, the broadness [of the provision] can lead to grave consequences especially affecting the media. Because the section is capable of very wide application, it is bound to frequently place news publishers in doubt as to what is safe to publish and what is not. Some journalists will boldly

35. www.nbs.go.tz
36. http://www.twaweza.org/go/stats-act-analysis

> take the plunge and publish…at the risk of suffering prosecution, and possible imprisonment. Inevitably, however, there will be the more cautious who, in order to avoid possible prosecution and imprisonment, will abstain from publishing. Needless to say, both the prosecution of those who dare, and the abstaining by those who are cautious, are gravely injurious to the freedom of expression and consequently to democracy (5-6)[37].

The remainder of the analysis provides important context into search and seizure and the liabilities of service providers in terms of obligations to monitor data and "seek facts or circumstances indicating an unlawful activity". The aforementioned concerns issues that are relevant to the practice of journalism.

Scholars note that resolving challenges facing media by local media and civil society networks is an optimal model to impact policy change in terms of media regulations. This can be achieved through prudent engagement with parliamentarians and within local civil society networks. Fostering local political ownership and political support for media – framing it as an independent pillar of development and democratic governance – may result in the necessary legal framework to protect media over the long term (Rothman 2016: 9). According to Rothman, the model must empower local leaders, promote south-south knowledge sharing, foment parliamentary exchange, and involve multi-stakeholder media development dialogues as a solution.

With local and regional solutions – such as the East African Community, or domestic press freedom and civil society coalitions – more emphasis should be placed on local drivers of change to build real political support for the media.

Open data initiatives complement regulation

Data availability and data liberation shape what content journalists work with and reflect a culture of data-use. Such initiatives fill important gaps in available statistics, but they serve only one aspect of data journalism, not addressing the journalistic challenges to public interest reporting around the world.

Many independent forums are ushering in commitments to opening data and concretely publicizing data. Open data communities are growing through partnerships, but oftentimes the success and quantity of data availability is contingent on the ultimate willingness of the private sector and governments to commit to transparency. Non-governmental organizations (NGOs) are important in the equation of promoting transparency. They often have the resources to invest in advocacy and in data production and cleaning in order to present it to wider audiences. NGOs will often concentrate on particular themes depending on their value-add – such as extractive sector related data compiled by Natural Resource Governance Institute (NRGI) or health data supported by the Gates Foundation. Still, data in the public domain does not substitute skill sets and literacy for journalists when using data to explain events, trends or patterns of public interest.

In 2016, Tanzania's Access to Information Act was passed under their commitment to Open Government Partnerships (OGP), and affords oversight actors such as media the option to request information. This is a major step in expanding publicly available data on demand, instead of relying on independent organizations to coordinate the disclosure of data and package it for public consumption.

Questions remain as to how quickly requests will be acted upon, and whether each request will receive due diligence. According to some investigative journalists operating in the European Union, accessing

37. http://www.fesmedia-africa.org/uploads/media/Tanzania_Media_Laws_assesment.pdf
38. https://resourcegovernance.org/blog/how-can-journalists-overcome-extractives-sector-opacity

information requires a great deal of follow up and it often takes weeks if not months to acquire the data[38]. Moreover, Tanzania dropped out of the OGP framework in 2017, citing relevant and capable domestic mechanisms for publicizing data. Tanzania has conveyed important commitments to making data publicly available, not least through disclosing data on the open data portal[39] launched under the World Bank's Support to Open Government, Data, and Accountability Program funded by the UK's Department for International Development.

A major instance of data liberation is the WaziMap "Census Reporter" developed by Code for South Africa that allows individuals to take census data and connect it to maps. This is a case in which external parties developed a dashboard that collates existing disparate data sets to optimize use of comparative statics and to maximize the potential for storytelling methods, one of which is visualizing the data. Data dashboards are adaptable to different contexts and allow the existing infrastructure to layer in different forms of data. In the case of WaziMap, Code for South Africa supported its expansion outside of its original context and into Tanzania and Kenya, while layering in health data to cover themes such as mortality and HIV rates. The impacts of this project sustainability and growth in public interest journalist could not be independently verified at this stage.

In this case, the identity of a journalist as a storyteller as opposed to a data scientist is underscored. Journalists are often intimidated by spreadsheets and otherwise look for targeted information. In this sense, partnerships and open data initiatives are imperative for newsrooms and for enabling the practices of oversight actors, such as journalists, the public at large and civil society, in order to produce digestible and contextualized analysis for the broader public. The impetus for liberating data and building tools makes data visually understandable and it connects it with a wide variety of audiences.

The following two cases of Hurumap and the Natural Resource Governance Institute (NRGI) show how organizations are leading efforts to open up data and making slow strides towards ensuring journalists both use this data and adapt to the unanticipated challenges they face. Support for independent media startups, incubators, media watchdog groups and open data initiatives is a method of filling gaps in existing open data access.

Uses of data dashboards

Data dashboards are helpful information aggregators and can easily produce intuitive visuals, but are not a substitute for the skill sets and data literacy required to tell public interest stories that citizens learn from. Hurumap Tanzania compiles different public data sources on a singular dashboard to give infomediaries such as journalists an easy tool to visualize and compare different statistics to tell stories. Sources of data include government census data and PEPFAR, and all of the data is accessible on openAFRICA.net. Comparative statics in the dashboard include literacy and numeracy, school attendance, cause of death, traffic and crimes incidents, among others. The Guardian (TZ) published an article using Hurumap to correlate Tanzania's fiscal policy for food processing with growing difficulty in business owners offering more jobs. The journalist tests claims made by the Confederation of Tanzania Industries using Hurumap, despite using a webclipping tool to extract a visual of Hurumap's webpage as a visual. This case suggests room for improvement in data-use via dashboards, but underscores an interest from the broader public in using this data as a source of accountability.

However, journalists may not have the proper infrastructure to use these dashboards. "Investigative

39. http://opendata.go.tz

journalism is dependent on Internet connectivity: open source research, data mining, scraping, encryption and sending emails"[40]. In the case of Burkina Faso, a journalist faces issues with reliability of Internet connection to do research and download large files. Accessing efficient Internet is often costly and this impacts journalists' ability to operate in cross-border collaborative reporting projects that demand interaction and data analysis.

Extractives sector data-use

Natural Resource Governance Institute (NRGI) focuses on the extractives sector by advocating for opening data through contract disclosures while leading the charge in making that data available for easy consumption through dashboards. For example, NRGI cooperates with the government to publicize contract disclosures as mandated by Extractive Industries Transparency Initiative (EITI), to which Tanzania is a signatory. EITI is a global standard that promotes open and accountable management of oil, gas and mineral resources supported by a multi-stakeholder coalition of governments, companies and civil society.[41] More recently, NRGI has taken advantage of a push toward increased transparency in the European Union and North America, which now requires publication of payments made to governments from extractive industry projects in countries where they operate. As the global movement for transparency targets home country commitments, the public worldwide now has granular access to data such as taxes, royalties and production entitlements on a disaggregated project level. Project-level data is available at resourceprojects.org in a user-friendly format [42].

As independent, third-party organizations advocate and present swaths of data for public consumption with the facilitation of multi-stakeholder groups such as EITI, there is ultimately more potential for public accountability of a traditionally opaque industry. Journalists benefit from such tools developed by multi-stakeholder initiatives in their investigations into the extractive sector[43]. For example, EITI data was employed in an investigative piece in 2018 into natural gas extraction royalties in Cameroon and the benefits that has for citizens[44]. The journalist cross-compared company disclosures to government reports and shows a discrepancy in fees paid without any mention of the beneficiaries. It finds that these payments are wrapped in subsidiaries domiciled in territories that do not demand companies declare revenues or beneficial owners.

This case illustrates the relevance of open data initiatives up to the point that oversight actors and infomediaries use and contextualize data in their analyses. A major source of accountability in this equation is bringing the public into the debate and telling stories that bring citizens to the center of the story, such as the Cameroon case of how citizens have not benefited from natural gas royalties. If journalists find data inaccessible or they do not have time to analyze it there may not be immediate impact from the disclosure. Some international reporting initiatives, such as ICIJ and 100Reporters[45], bring international reporters and journalists native to the context to investigate pieces using these tools through collaboration, well exemplified in both the Panama Papers[46] and Paradise Papers[47] investigations into offshore leaks, with cross-border reporting teams bringing these stories to citizens affected globally.

40. https://www.icij.org/blog/2018/02/work-high-tech-global-project-limited-internet-phone-connection/
41. https://eiti.org/who-we-are
42. http://resourceprojects.org/projects?projectQuery=&entityQuery=&sourceQuery=&projectCountries=&entityCountries=&projectReportingCompanies=&entityReportingCompanies=&projectPaymentTypes=&entityPaymentTypes=&reportingJurisdiction=
43. https://resourcegovernance.org/blog/how-can-journalists-overcome-extractives-sector-opacity
44. https://100r.org/2018/02/cursed/
45. 100r.org
46. https://www.icij.org/investigations/panama-papers/
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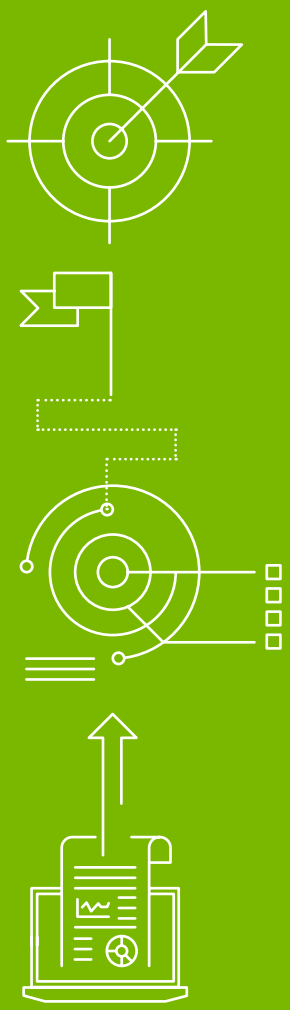
DATA JOURNALISM SUCCESS STORIES



Data journalism diffusion takes multiple forms and is often dependent on the objectives of supporting organizations. However, more rigorous evaluations are required to know if projects are generating more and better data journalists and if traditional development models are effective at all.

Data bootcamps and hackathons are common data journalism training methods. However, there are a host of refined training approaches that have observed meaningful growth in data journalism. A major conclusion from International Center for Journalism's (ICFJ) experience in Tanzania was that it is a long process to grow basic skills related to data-use. Bringing trainees to external venues can be useful for spurring interest in analytical tools, under the condition that targeted journalists are interested and willing to experiment. Data training in Tanzania has included support for a swath of reporters at a national level, data capacity in individual newsrooms, or developing new storytelling formats.

This section depicts the range of data training approaches practiced in Tanzania, East Africa, and globally.

DATA DESK INNOVATION AT MWANANCHI COMMUNICATIONS LIMITED (MCL)

Mwananchi Communications Ltd (MCL)[48], a popular newspaper in Tanzania with a growing digital presence, employs novel forms of data journalism. MCL is comprised of three major newspaper assets, including Mwananchi, The Citizen, and MwanaSpoti. Recently, the newspaper shrank the number of reporters who now report across newspapers. Digital content distribution also became more important. With the support of Code for Tanzania, Mwananchi was able to establish a data desk.

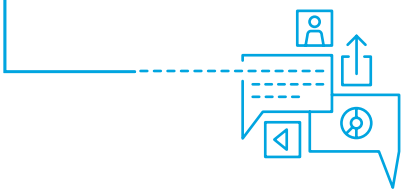
Through a needs assessment, ICFJ invested in a content management system (CMS) to enable newsrooms to host embedded tools for visualizations on their websites.

Visualizing data is an important component of data-use, but only insofar as it tells a story effectively for the target audiences. Nuzulack Dausen, a former data editor, has transformed Mwananchi's digital and print content production and proves how data can support stories effectively. In an article on contraception use[49] across Tanzania, Dausen draws on multiple public data sets to clearly state that the use of family-planning methods is increasing. By using state demographic and health surveys and the National Bureau of Statistics, the article was able to show how a decrease in fertility rate correlates, at least in minor part, with increases in family-planning methods. The article breaks down the figures through a visualization that shows how numbers and physical proportions can complement stories.

The main lesson from MCL's experience is that time and expectation management of what data can accomplish are important considerations for newsrooms' calculations of opportunity costs. In conversation with a data journalist, this sentiment was summarised by "data is a long process with a small outcome". Benefits and drawbacks need to be weighed against one another. According to Tanzanian journalists, data-driven content is a source of fact-checking in the era of fake news as much as it is a source of accountability in terms of monitoring progress.

Data analysis for journalistic purposes is a process. It demands continual second-guessing of the assertions being made in a story and through

"By using state demographic and health surveys and the National Bureau of Statistics, the article was able to show how a decrease in fertility rate correlates, at least in minor part, with increases in family planning methods. The article breaks down the figures through a visualization that shows how numbers and physical proportions can complement stories."



48. MCL has a portal for data stories that can be found at data.mwananchi.co.tz
49. http://www.thecitizen.co.tz/magazine/Rise-in-use-of-contraception-reflects-hope/1840564-4065082-8ki69mz/index.html

DATA DESK INNOVATION AT MWANANCHI COMMUNICATIONS LIMITED (MCL)

data and what other factors may be correlated to the outcome. This could take the form of consulting other journalists in a newsroom to think critically about what other factors may be at play in the issue up for discussion. The process itself demands scraping websites, cleaning data, verifying it, and ultimately using one or two data points to bring in an alternative viewpoint. Once a journalist has the relevant data with which to begin fitting it into a narrative, the job is not over. This content now needs storytelling, whereby fielding interviews with relevant parties on both sides of an issue may be the next step. This long process may have formidable, new evidence to present to an existing story, or may unearth a new issue altogether. While data-use may occupy exclusively the time of one or two journalists, they have the opportunity to crosscut different topics, from sports to business, and news folds to ultimately support reporting across the company. In this sense, data journalists support the reporting of other journalists within the newsroom not always working on their own projects.

Data journalism is new to Tanzania, and ultimate impacts are not immediately measurable, but newsrooms remain invested in its growth[50].

"Once a journalist has the relevant data with which to begin fitting it into a narrative, the job is not over. This content now needs storytelling, whereby fielding interviews with relevant parties on both sides of an issue may be the next step. This long process may have formidable, new evidence to present to an existing story, or may unearth a new issue altogether."

50. http://preview.shorthand.com/kk9My0DTzg

FACT-CHECKING WITH PESACHECK IN EAST AFRICA

PesaCheck is a unique case of isolated, development-driven data stories. It informs popular debates relevant to citizens' wellbeing by "verifying the financial and other statistical numbers quoted by public figures across East Africa"[51].

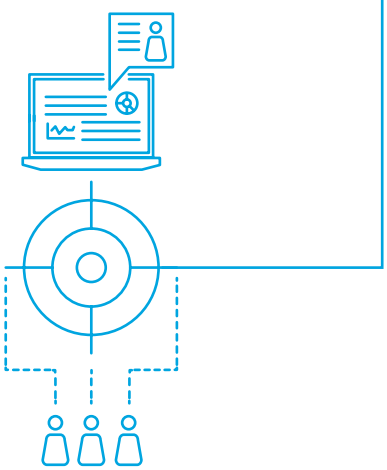
PesaCheck was developed with support from the International Budget Partnerships and Code for Africa. One use case is the fact-checking of public finances. Journalists using PesaCheck begin stories with questions such as, "How much of Kenya's budget is going towards the health sector?" or "How sustainable is Uganda's current level of public debt?" Once key questions are identified, the journalists proceed to contextualize and clarify popular public debates using data-driven analyses to find evidence and inform public debate. This analysis takes advantage of tools such as Piktochart to create infographics and data visualizations to better assist citizens in interpreting the data and making informed decisions with the data.

PesaCheck is in the business of informing popular debate and engaging citizens on important political issues, and to building capacity across media outlets in Kenya[52]. One hope is that evidence-based reporting spurred by PesaCheck will become a model for other media houses that will base their reporting on less polarized political debate[53].

In the Tanzanian context, PesaCheck has produced a variety of stories that resonate with the population at large. In one case, a reporter dived into a politicized debate on the causes of the increase in the price of maize in Tanzania[54]. The story begins by addressing the release of official statistics and surveys from independent organizations that convey the increase in price. It proceeds to contextualize politics behind maize prices, by analyzing the accuracy of what politicians say is the cause of maize price increase. For example, it was noted that, "businessmen are responsible for a sharp rise in maize prices"[55]. The reporter pulled in other data sources, such as a World Food Program report and expert analysis, to show that climate change and unseasonably severe droughts have resulted in food shortages and a depletion of maize stocks, and that had a hand in driving prices up. This is a case where both claims may be relevant, but where a confluence of data sheds light on a broader picture and allows the reader to formulate an opinion in a balanced way.

The question still remains whether these stories generate public debate.

> "Once key questions are identified, the journalists proceed to contextualize and clarify popular public debates using data-driven analyses to find evidence and inform public debate."



51. pesacheck.org/about
52. www.poynter.org/news/pesacheck-new-fact-checking-website-kenya-aims-follow-money
53. ibid
54. pesacheck.org/what-is-the-cause-of-rising-maize-prices-in-tanzania-f014e63e667d
55. ibid

OPEN KNOWLEDGE INTERNATIONAL

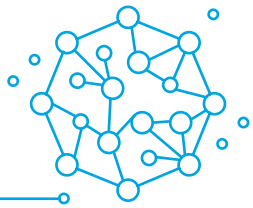
NEWSROOM DATA JOURNALISM IN GHANA

Targeting media houses as a holistic entity in which to mainstream data-use is a recurring model with some successes. Code for Ghana (CfG) spearheaded a program in three separate media houses with buy-in from managing editors from the outset. In determining who they would work with, the Ghana team did a needs assessment in cooperation with the editorial team from each outlet. Only upon determining the level of data-use capacity and editorial direction did CfG confirm their support for this project. In Ghana CfG worked with Citi FM, Daily Graphic and the Ghana News Agency. With Daily Graphic, a large and reputable formerly state-owned newspaper, Code for Ghana tapped into proactive leadership within the media house and successfully trained and got the data team to visualize election results. However, one drawback to working with print-exclusive outlets is that visualizations are oftentimes printed in black and white. Moreover, it is not clear if these initiatives produced sustainable and useful data journalism pieces in the mentioned news outlets.

Citi FM, a young radio station with the popular Citi Breakfast Show, expanded their digital presence to increase their popularity on radio with audiences online. Increasingly, the outlet employed data journalism, by training specific journalists internally and by investing in visualizations for online content. Bernard Avle, Citi FM host and managing editor, expressed that there was interest in growing their data-use capacity as an organization, but they lacked the funds to train and grow their capacity. CfG pulled out of the project after six months due to an absence of funding.

It is important to target change agents in newsrooms and identify outlets that are excited about innovation and have an interesting entry point around which to shape data journalism training. However, sustained engagement is integral for sustainable uptake of data journalism practice and embedding data-driven journalism in newsroom cultures. Sustained engagement for trainers may take the form of mentorship, periodic technical support, and/or developing a local community of practitioners that builds off and learns from one another. For newsrooms, sustained use of data journalism is a way to diversify their news product and retain committed and interested readership. Newsrooms that take up data journalism are often those with a large readership and are willing to experiment. In other cases, a younger outlet may operate with a data-driven reporting niche that sells or distributes data-driven stories to bigger media outlets. Despite the business model, the level of public interest reporting with data in Ghana is currently unclear and requires more evidence to make the case for optimal future data use interventions.

“For newsrooms, sustained use of data journalism is a way to diversify their news product and retain committed and interested readership.”



NEWSPLEX AT THE DAILY NATION IN KENYA

The Daily Nation, a Kenyan newspaper with the highest daily circulation in Kenya, developed in partnership with data trainers The Nation Newsplex, a data team with a mandate for fact-checking. "Nation Newsplex has a rare combination: a public interest data-driven mandate and an audience from a diverse background"[56].

This case exemplifies the business logic for data journalism and making the right argument for investing in training that takes a holistic approach to storytelling before expecting data-driven stories. However, a majority of the founding members of Newsplex spent differing amounts of time, some even a few years, engaged in Internews in Kenya Data Journalism training program before starting independent projects at The Nation[57].

In a conversation with data trainer Eva Constantaras, she noted that major lessons from developing a data desk are to spend adequate time embedding it into newsroom culture and to use it as a tool for optimizing balanced journalism. According to Constantaras, Newsplex emerged at a time when there was an obsession over polling and public opinion, which ultimately defined the scope of the data desk. During election coverage, Newsplex was equipped to investigate policy impact for ordinary citizens in the event one candidate was chosen over another. On Sundays, Daily Nation ran an article checking facts of political debates that week, and importantly this shaped how candidates in subsequent public debates used figures and statistics. Eventually, the Nation Newsplex team won an award in the 2017 African Fact-Checking Awards in Johannesburg, South Africa.

By the end of the training, journalists were able to write a hypothesis, ask questions, document their work, and more rigorously document sources and origins of calculations. A lesson from this case was that training is about the content that is designed to reach ordinary citizens affected by these policy issues, and there is not an emphasis on sophisticated interactives. For example, for a journalist to use data to ask why schools are in such poor condition is more impactful and resonates with audiences more fundamentally than simply learning to package calculations and percentages into a visual. Especially for managing editors and publishers, creating more interactive public engagement feeds into editorial and business calculus.

A lesson from the Kenyan case is that data journalism plays an important role in balancing and leveling sensationalized news, and that reporting on popular, if politicized, issues in an accurate way can be effective

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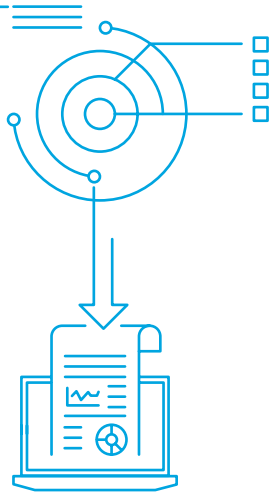


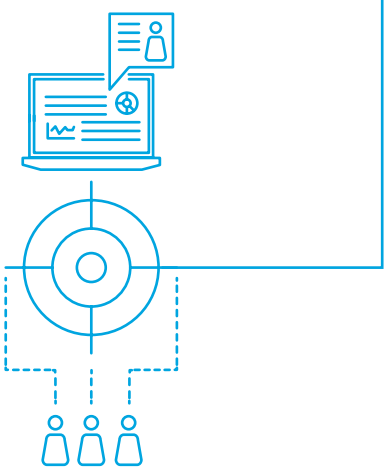
56. https://www.poynter.org/news/how-daily-nation-used-fact-checking-antidote-poisoned-election-coverage
57. https://schoolofdata.org/2014/03/07/kenyan-data-journalism-fellows-shed-light-on-complex-health-issues/

NEWSPLEX AT THE DAILY NATION IN KENYA

and audiences will grow trust and confidence in the news outlet. A reporter from The Nation noted that data journalism in Kenya is still at a basic level and does not compare to The Guardian (UK). They emphasized that training on analysis and hypothesis development must come before an ability to visualize data, emphasizing the opportunity costs and anticipating outcomes of investing in data training.

In a conversation with Ghanaian reporter and experienced trainer Bernard Naasara, formerly of Starr FM Ghana, he noted that a major concern for ensuring uptake of training is humanizing complex information and for bridging existing fears of numbers. In contexts where journalists are intimidated by the use of numbers or do not have the requisite training to experiment or command data in their reporting, there is a need for careful attention to the data to break it down over longer sessions and with journalists committed to incorporating it into their day-to-day reporting process. Moreover, to get data-driven stories to resonate, journalists need a hook in their stories that puts the individual at the center of the discussion. Before using data, the journalist must think through how it will concern citizens, the ultimate reason and the source of impact for the reporting. Putting the reader at the center of the story requires humanizing data and thinking strategically. For example, in a story on tax payments by a multinational corporation, it is critical to ask whether Ghana, and by virtue Ghanaians, got value for money by painting a picture of the environmental degradation, and other aspects of the issue, and not leaving it on a technocratic level.

> "...to get data-driven stories to resonate, journalists need a hook in their stories that puts the individual at the center of the discussion."



Newsplex played an important role in the 2017 elections, and they did not stop at simply writing up a piece and leaving it on their digital platform. "After investigating key elector issues like economic growth, corruption, education, and health, the platform ensured the material was published online, in print, and was widely discussed in the news bulletins on Nation Televisions"[58]. Persistence and early investments in training in this case led to success.

One of the journalist's most important roles is mediating popular dialogue, and data journalism is a unique way to achieve the aim of healthy and informed political debate.

58. https://qz.com/1176452/fake-news-in-kenya-being-battled-by-startups-like-nendo-pesacheck-and-odipo-dev/

DATA FOR DEVELOPMENT TRAINING IN PAKISTAN

A model other than newsroom embedding was found successful in the case of data journalism uptake in Pakistan. The project targeted a small number of journalists and other data practitioners in order to grow an open data community and to build a culture of evidence-based decision making in least-developed areas of Pakistan, namely in the Federally Administered Tribal Areas (FATA), Khyber Pakhtunkhwa and Baluchistan[59].

"Participants engage in one to two-week workshop and lab sessions spread out over the course of 12 months to avoid pulling them out of their economically vulnerable newsroom for extended periods"[60]. Prying journalists away from their media houses is a careful balance to strike, but there are creative approaches to take, such as offering the fees for a consultant reporter to fill their spot, according data journalism trainer Eva Constantaras[61]. Identifying participants was integral to the success of the project. The training model benefited from a rigorous participant selection process that was buttressed by Internews' network in-country, through which they selected 14 participants from a pool of 56 applications who had three key traits[62].

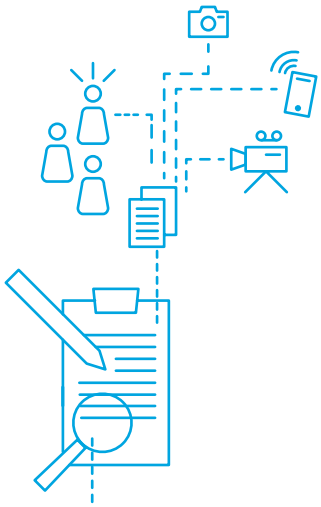
Important stories came from the project. For example, it was found that a nation-wide vocational program was training Pakistanis for skills not demanded by the job market, after journalists compared available market data to the skill sets being focused on[63]. Another piece undercovered that in the China-Pakistan Economic Corridor, Chinese investment projects are using up scant water supplies, wherein one in every 25 citizens tested positive for water-borne disease over a six-month period in 2017[64]. The piece sources data from the local government, the Gwadar Development Authority and World Health Organization to corroborate findings, and visualizes the data using Piktochart[65].

One result of the project was a blog for data journalism practitioners in Pakistan participating in training programs[66]. Getting journalists away from a newsroom for the requisite time to confidently train on data journalism may require negotiation with editors.

"The project targeted a small number of journalists and other data practitioners in order to grow an open data community and to build a culture of evidence-based decision making in least-developed areas of Pakistan."

59. datajournalismpakistan.org
60. ibid
61. Interview, Eva Constantaras
62. https://www.internews.org/sites/default/files/2018-03/Internews_Pakistan_data_journalism_casestudy_public_0.pdf
63. ibid
64. www.datajournalismpakistan.org/2018/01/04/gwadars-growing-water-war/
65. pakvoices.pk/gwadars-growing-water-war/
66. http://www.datajournalismpakistan.org/

DATA FOR DEVELOPMENT TRAINING IN PAKISTAN



The donor might be best placed to provide funds to hire a freelancer while the data trainee is away from the newsroom. Especially in commercial newsrooms in Tanzania, it may take more than offering to secure uptake of data journalism and attendance of trainees. Persuasive arguments include an expansion of online presence through digital convergence, as well as innovating engagement with audiences. In Tanzania, this demands being realistic in negotiations with editorial staff and developing annual work plans between the training institute and the newsroom staff. This may involve guaranteeing mentorship to guide a story for publication, or to get journalists to tell a sector-specific story using data but one that may not be critical from the outset.

“Persuasive arguments include an expansion of online presence through digital convergence, as well as innovating engagement with audiences.”

OPEN KNOWLEDGE INTERNATIONAL

DATA AND TECH DIFFUSION IN THE HINDUSTAN TIMES

hindustantimes

The Hindustan Times, a major legacy news outlet in India, adapted technology to the betterment of data journalism organically within the newsroom.

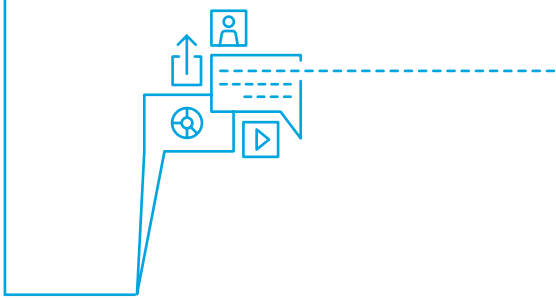
With Digital Fridays, a weekly peer-to-peer training session, an ICFJ Knight Fellow was able to hack the newsroom culture to build a digital-first outlet. The innovation in the approach was that it was bottom-up, giving journalists a direct hand in identifying training content[67]. Digital Fridays were non-compulsory and the topics wide-ranging enough to attract both editors and journalists. The approach allowed a range of topics from multimedia journalism skills to data collection methods. This led to new collaborations in the newsroom, whereby reporters sought out specialists in tech and multimedia to identify new stories and innovate on their practice[68]. Similarly, reporters were able to use their tech desk to explore a large data set[69] on Indians in the Ashley Madison leak[70]. The case emphasizes the complementary nature of digital convergence and data journalism.

An important lesson from this case is how baseline surveys of interest and capability, and disrupting traditional media development models benefit success and may have unanticipated results. Diffusion of tech is not a straightforward process, and relevant to each context. In this case journalists were able to innovate around their practice while also expanding their reach by harnessing data to do incisive and credible analyses in a media market that demands digital outreach with moderation.

In India, ICFJ worked with newsrooms that lagged in using digital technologies. They hoped to get journalists and editors to use more interactive engagement tools to grow health and development reporting. Upon a needs assessment it was determined that they hesitated to use third-party tools. The use of data visualization tools slowed the page loads, and with 80–90% of the newsroom's audience on mobile, slow page loads meant losing audiences[71]. As such, this program demanded the use of a developer to optimize the website's ability to host data visualizations on mobile platforms to set the newsroom up for leveraging data journalism training. In arguing for this process, ICFJ noted the importance of bringing up the business case for developing mobile platforms for data-driven journalism[72].

In this case, for data journalism to work, it depended on tools that were not built in the Indian context with an understanding of the constraints of their existing digital infrastructure. It posed the question of whether tools developed in Silicon Valley can be diffused in environments they were not designed for.

"In this case journalists were able to innovate around their practice while also expanding their reach by harnessing data to do incisive and credible analyses."



67. ijnet.org/en/blog/digital-Fridays-innovative-approach-creating-digital-culture-legacy-media-giant.
68. ibid
69. projects.hindustantimes.com/ashleymadison
70. ijnet.org/en/blog/digital-Fridays-innovative-approach-creating-digital-culture-legacy-media-giant.
71. Interview, ICFJ's Ben Colmery
72. ibid

MAKING THE CASE FOR DATA JOURNALISM IN NEWSROOMS

It is important as a training provider to sell data journalism as a value to the newsroom's business sustainability. Selling it has to start at the top of the food chain. Buy-in from editors and publishers will afford commitment to the project, but they also must look at it as an investment – the publishers must have some skin in the game and invest in order to harness its successes. Given the time and capital investment it takes to grow data-use in newsrooms, it is important to view it as an opportunity cost. Investigative pieces with data-driven reporting methods have a great chance of generating big headlines, but are still a gamble given the time it takes to compile, assess, and analyze data. A selling point might be that data journalism provides stories that distinguish it from the rest of the media market.

Better understanding audiences through studies of attention share and media-market share are useful when breaking into data journalism. Oftentimes larger media houses have diverse audiences, and preparing data journalism that fills gaps in existing audience outreach is an important source of retaining readership and growing audience numbers.

When managing expectations in terms of data journalism use and sustainability, it is important to view it in business terms, as emphasizing this route is an opportunity cost. At training institutes, it is important to consider the tools required for data-use and visualization and content distribution figures when investing in digital versus newspaper or radio. This requires media market analyses to determine how skill sets will be employed and used long-term. In Ghana, for example, popular radio stations increasingly use data-driven analysis in their broadcasts while also presenting figures on digital platforms, which tap into hugely popular mediums such as Facebook, WhatsApp, or Instagram.

Data journalism is a skill set that grows journalists' impact and engenders a sense of longer-term interest and job mobility that is vital to retaining journalists in the industry. While job cycles and incentives inevitably shift and journalists leave the field for more lucrative industries, there are still opportunities for data-use in journalism to be mainstreamed when media houses express long-term interest and have invested and critically thinking leadership.

It is similarly important to look at how data journalism evolves over time in different contexts to predict the lifetime of such investments. Australian academics Scott Wright and Kim Doyle interrogated the evolution of data journalism in Australia and observed a decline in dashboard-related projects and larger projects (2018). However, this was coupled with the encouraging sign that some reporters are normalizing data-use in their everyday reporting as a method of institutionalizing the practice that no longer operates exclusively as "data journalism".

Greater impact from data journalism may require different antidotes because of often limited distribution or reach of data-driven stories. Civil society collaborations may create greater communications around issues relevant to different groups, noting the caveat of journalistic independence. In Tanzania, where Internet penetration is low, online data visualizations may be less attractive for businesses. However, embedding data in radio storytelling as a tool for fact-checking, or using statistics to investigate stories in print newspapers, may be a more relevant approach.

It is important to frame data journalists in training as a source of job mobility and quality and impactful reporting that will differentiate them from other reporters.

MONITORING AND EVALUATION IN MEDIA DEVELOPMENT

Monitoring and evaluation is critical to learning from previous programs, as much as it is to donor reporting. Taking stock of lessons and re-strategizing is a natural process for development interventions and is demanded in constantly changing political landscapes and with rapid changes in the media business. Increasingly, monitoring and evaluation is an important financial proposition as media houses find less and less revenue from traditional sources.

"In the absence of both commercial and public sources of revenue, more and more media organizations are willing to accept novel funding arrangements from the philanthropic sector"[73].

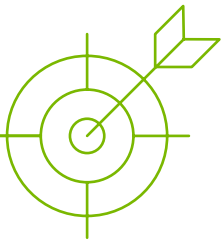
Also, with imperfect baseline surveys and adaptive training processes where data journalism training takes place over longer periods of time, monitoring and evaluation must adapt over the length of the intervention.

One data trainer applies a step-by-step review of the training timeline, where pre-course assessments and weekly updates on the practical and technical uptake of training inform next steps. Traditionally, few organizations across the development sector applied rigorous monitoring and evaluation, but it is imperative for long-term growth, accountability and sustainable training practices. The ultimate aim is to measure policy impact of reporting via data journalism, for example reforming laws as a product of sustained reporting and mobilized citizens' awareness. Measuring impact in media development interventions needs to be systematic, and must start before the program is implemented while also adapting to changes in circumstances of the programming. It is tedious and demands a great deal of forethought and strategic thinking, but it conveys the program's local relevance and leaves space for innovation on how programs may be changed and adapt over time.

Moreover, for donors and media development practitioners with a thematic focus such as good governance, measuring reach, impact and influence is a major intention, but difficult in terms of attribution and demands differentiation from advocacy work. "Just because journalists have exposed people to information doesn't mean that people will take action or demand policy changes in response to that information"[74]. Going back to the case of the Nation Newsplex in Kenya, data-driven fact-checking informed citizens and clarified polarized uses of statistics, but that does not mean there was an observed leap from traditional voting patterns[75].

Optimal data journalism training practices meet the needs of journalists in their local contexts, and monitoring and evaluation can support this process.

73. https://ssir.org/articles/entry/can_we_measure_media_impact_surveying_the_field
74. ibid
75. Interview, Eva Constantaras



CONCLUSIONS AND CONSIDERATIONS

Data journalism involves "using data for the journalistic purpose of finding and telling stories in the public interest" (Berret and Phillips 2016). Journalists are often not data scientists. However, journalists mediate public information and technical data for larger audiences. As such a major aim of data journalism training is to reorient journalism away from a public relations or propaganda role and to import critical-thinking skills. In Tanzania, data journalism is growing its profile and it will take role models in the industry to grow its use.

Ultimately, data is just one component to successful and accountable journalism. Data-driven journalism is a part of newsroom's portfolio, but is not the whole, according to Ben Colmery. If policy change is the ultimate aim, data journalism may not be the only solution or route to sustained audience engagement and subsequent policy change. Immersive technologies such as Facebook Live, Augmented Reality or 360 video may be alternative approaches, but still may not solve problems of substantive public interest data-use and use of multiple triangulating sources. Tech in this case is likely not a panacea for data journalism or growth in professional and public interest journalism more generally. If the objective is that the public needs to know who is getting healthcare and who is not, then data is important in this equation.

Moreover, the community of practitioners and academics has limited knowledge about the extent to which some dashboards are taken up by journalists or newsrooms. This also pertains to the impact that data is having on major governance questions facing countries, such as how they should manage their natural resources, or how to most efficiently collect taxes and distribute government revenue.

Data journalism is not all about tech: data journalism represents all the pieces of quality journalism generally – critical thinking, quality writing, use of multiple sources, subject matter specialization – in combination with technical skills. In Tanzania, there are different gaps in training depending on the media house or journalist one works with and understanding the baseline training needs informs the longer-term training projects.

A major gap in the success of data journalism training is due to a general lack of public interest and analytical journalism. This demands bringing attention to media cultures and markets as they change and adapt to localized forms of information gathering and communication. It may be the case that most news is distributed through word-of-mouth, but data journalism can add value to sources of information that may diffuse into other communication patterns, such as community radio. More analysis is needed to comprehend how information is circulated in a changing media landscape.

It is important to consider the limitations of the media's role in development. As British academic and media expert Martin Scott noted:

> "disseminating information through the media will only change behaviours in very specific circumstances – when the right people, can access the right information, at the right time, understand it, trust it and be able to act upon it. It's no use telling people to boil their drinking water, for example, if they don't have the means to boil it"[76].

76. https://www.theguardian.com/global-development-professionals-network/2014/jun/13/media-for-development-transparency

This is an important concern in the Tanzanian space, where multiple factors embed in the journalism practice, not limited to immediate financial needs, willingness of editorial management to publish or invest in long-term reporting, and lack of trust in journalists in society.

Data-driven journalism is an important and disruptive change in contemporary journalism practice. It is not a panacea solution to the fake news era, but it is a piece of the equation in achieving accurate, balanced, and critical reporting. The pathway to growing and optimizing data journalism is yet imperfect, but over time, as media pushes its horizons, the field will grow cohesively. Especially in Tanzania, the efforts of trainers and advocates are integral to its lasting relevance and for pushing the limits of journalism in increasingly difficult circumstances.

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Appendix A

GUIDE FOR PROGRAM DESIGNERS

This guide derives from the qualitative data and analysis collected during the development of this report, alongside a literature review of training documents. The hope is that future data training initiatives, alongside a global effort to promote better use of data by governments, civil society and the public at large, will have a greater likelihood of success by learning from the existing state of data training and support.

On data journalism training:

1. Do not overload readers with numbers, instead placing the data in a broader narration that puts the reader at the center of the story.

2. Spend enough time with case studies: journalists benefit from having tangible, replicable models that they might apply in their respective reporting context.

3. It is important to identify your audience before framing or presenting data.

4. Data use training is less training on technology and more about the skill sets to grow effective public interest journalism.

5. Understand the bias and margin of error in your data.

Data journalism is often about taking important figures such as tax revenues and placing them into an opportunity cost framework. Now that we know how much tax is collected and how it is redistributed, society may be able to offer a critical take and relate it to concerns over relevant issues such as access to healthcare or drinking water, infrastructure needs, access to electricity, or a need for education facilities. While large statistics such as gross revenues from one project or overall tax revenue may be hard to grasp, placing them in a context that hits home to the population is a helpful exercise in determining the relevance of the story for a particular audience.

Media development experts and practitioners have drawn consensus that short-term workshops are out of date, that monitoring and evaluation needs to be more systematically implemented, and that some interventions may be harmful in the form of market distortions or by endangering journalists. However, how effectively this "knowledge" by experts is put into practice is up for debate, as these considerations do not always make it into practice.

As one journalist noted, "data are about people" and it needs to touch lives in order to remain a relevant mode of analysis. In training or conveying the importance of data journalism, "humanizing the level of analysis" is a means of conveying data's relevance.

Training on data journalism benefits from systemic process-driven thinking, often referred to as the data pipeline among practicing journalists. The pipeline begins with a hypothesis, and then requires finding and acquiring relevant data sets, verifying the truth of the content by corroborating evidence with experts in the respective field and comparing with different data sets, and ultimately ensuring that the data is presented in an accurate and fair way.

Some questions to ask before embarking on data journalism training:

1. What are the short and long-term objectives for training journalists?
    a. What are trainees' data literacy levels? There may be a need for customized sessions.
    b. Is your training relevant? Put yourselves in the shoes of the practitioner – what is their audience demanding?
    c. What is the baseline for each participant's assumptions about data journalism and what are their goals?
2. Are you focusing on building sustainability?
    a. If so, how and with what objective?
3. Is there precedent for your methodology and should you be disrupting existing training models that might engender dependency on artificial sources of income or training?
    a. Are there multiple levels of engagement that will support data journalism, such as training at a university level?
    b. Are existing models taking advantage of local resources such as academic statisticians or legal experts?
4. What is your data training pedagogy? How will the journalists develop data literacy and put this into practice over time, incrementally?
5. When choosing participants, was there an adequate departure from existing infrastructure and in what ways are you finding diverse journalists who might not be immediately on the radar?
    a. Do you have adequate baseline assessments in place to successfully engage?
    b. Have you identified change agents in newsrooms to grow into a role of advocating data-use?
    c. Are they asked to produce a proposal that aims for a story or pattern in society for which they can explain the 'why' of?
    d. Do you have recommendations from the media house leadership, external advisors and a source of organic interest from non-prioritized reporters?
    e. What is your eligibility criteria: Do participants demonstrate analytical or investigative reporting?; Are they learning data use for public interest reporting?; How many years have they worked as a reporter?; Is there potential for newsroom leadership and in their previous work have they illustrated a commitment to ethical and accountable reporting?; What media have they reported with in the past – print, audio, digital, television?

6. Do you have systematic monitoring and evaluation tools in place to learn from the project as it progresses and to measure ultimate impact? Have you assessed earlier evaluations and based expectations on whether earlier interventions really grew frequent data use in journalism?

7. Are you ensuring you are not doing more harm than good in terms of endangering journalists or creating market distortions that inhibit long-term growth?

8. When training data-related skill sets, are you considering the ethics of data scraping and the implications of creating data sets not endorsed by official bodies?

9. Do you have a theory of change to which your strategy is applied?

    a. Is your model media development or media for development and how does that shape your approach?

    b. Is data journalism the best possible mode of engendering change, or is advocacy a better strategy?

10. Is there popular support for an independent media?

    a. Do you need an independent media for successful data journalism?

11. What types of media houses are being targeted in your program and what other factors impact the results of data journalism training projects?

    a. Is there an opportunity cost?

    b. Who owns the media house?

    c. Is there consensus that there is a slant?

    d. What is their audience reach?

12. Is there buy-in from relevant actors, such as owners, managing editors, section editors and journalists within a given media house to train on data journalism and how might you as a trainer or funder meet these needs while ensuring buy-in from newsroom management?

13. Do trainers support independent or mainstream media houses?

14. How do you introduce technology to support data journalism practices?

15. What are the substantive innovations from which media development practitioners can learn in Tanzania?

16. What do you do when public sector data is flawed or inaccessible and what does that mean for a multi-prong media development strategy?

    a. Are laws on free speech being paid attention to? Do you need to train and advocate?

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