Open Steps: A journey to discover and document Open Knowledge projects around the globe

Introduction

Open-Steps (http://www.open-steps.org/) is an initiative we, Alex Corbi (Software Developer, Spanish) and Margo Thierry (European Union Affairs/Politics Associate, French) two young Berliners, undertook to explore where Open Knowledge (OK) projects are underway and how they are being implemented in various sectors. We decided to travel the world for one year to accomplish this goal. We began in July 2013, visiting both organizations and individuals who apply the principles behind Open Knowledge in different domains, including but not limited to policy, human rights, and science. We searched for OK projects not visible to majority of the world. This involved extended periods of time, usually months, exploring expansive geographical areas. Our aim was to both learn from professionals about the opportunities, successes, challenges and drivers of OK projects but also to increase awareness and public engagement in Open Knowledge sharing.

We conducted interviews to discern the structure of knowledge sharing, public uptake, societal impact and overall benefits conferred. To increase public awareness and engagement with the concept of ‘Open Knowledge’ we conducted a workshop entitled ‘Visualizing Open Data to Bring Out Global Issues’ (http://www.open-steps.org/workshop/). The workshop was conducted in collaboration with the local groups and organizations involved in those projects for the purpose of introducing the topic to interested individuals in the community, raising awareness about the potential benefits of OK projects, and generating discussion from which the community could extract valuable information about the status of OK policies, as well as initiatives and projects ongoing in each local context. This event was organized more than 40 times in 24 countries. We achieved our goals and were thus able to identify and document the level and quality of community awareness and engagement with various forms of Open Knowledge.

Why investigate knowledge sharing projects in various parts of the world?

The main goal our initiative was to bring greater awareness of Open Knowledge systems to people on at local level and to teach them how OK projects can benefit society at different levels: changing the relations between public administration and citizens, bringing more awareness to particular informational concerns, and ultimately pushing innovation to solve local or global issues by engaging anyone regardless of their profession, (developer, scientist, academic, journalist, human rights advocate etc.), values, socio-economic status, gender, age or geographical location.

Open Knowledge is not only gaining interest among individuals in the IT sector, from where Open Source initiated its now large-scale movement, it is a global topic whose principles can be applied outside IT. Sam Murihead, for example, embarked on a one year journey to live every aspect of his life according to principles of open sourcing (http://www.open-steps.org/year-of-open-source-interview-with-sam-muirhead-berlin-germany/). Sam’s experience reflects a major finding of our project, namely that the principles of Open Source and Open Knowledge are increasingly adopted by a broad range of disparate individuals and organizations, which suggests a growing impact and new perspectives that can solve entrenched problems. The ability to accept input in a maximally inclusive and open format, rather than one that is siloed and closed, is permitting fully functional innovations that are immediately adopted, thereby short-circuiting market failures due to not understanding the needs of end-users.

The impact of relatively new OK projects is already observable. Information generated from public support is being released to the public domain in greater quantity and quality. Governments are thus, giving priority to transparency to their agendas, scientists are sharing data to accelerate progress, just to name a few examples. However, challenges to releasing data to the public domain remain.

The key to success: political will and citizen engagement

The first steps of our journey took us through European hacker spaces located in cities such as Prague, Vienna, Tirana, Pristina, Skopje, and Istanbul. A hacker space (https://en.wikipedia.org/wiki/Hackerspace) is basically a community-operated workspace where people with common interests, often in computers, machining, technology, science, digital art or electronic art can meet, socialize and collaborate on different projects. And, when it comes to sharing knowledge and supporting Open Cultures this kind of organization comes on the top of the list. Each one was impressive and unique in terms of the background of its members and their ongoing projects. To our surprise we discovered that, especially in the less developed countries, the interest and engagement of their members were extraordinary.

We visited Open Labs (http://www.open-steps.org/workshop-open-labs-tirana-albania/) in Albania and FLOSSK (http://www.open-steps.org/flossk-pristina-kosovo/) in Kosovo, both of which are OK pioneers in the difficult task of disseminating information in a context corruption and security issues sadly restrain public administrations from gathering and releasing data in an open manner. To meet this challenge, these projects build tools to empower citizens with knowledge. For
example, a platform to search the location of your polling station, *Kume votu* ([http://kumevotu.info/2014/](http://kumevotu.info/2014/)), has been created and maintained in cooperation with municipalities and the biggest conference on Open Source software held in Pristina, in the Balkans, ([http://www.flossok.org/en/conference](http://www.flossok.org/en/conference)), continues to attract several thousands of participants from the region and abroad. Wikipedia workshops have been organized in order to train citizens and students on how to use this online encyclopedia for the purpose of translating, and even extending, its content into the language of Albania. The impact of these respective projects can be measured by the rapid increase of events taking place in the region and the number of enthusiasts getting engaged.

Europe revealed a heterogeneous implementation level regarding the stages towards being open. The engagement of public administrations, the availability and quality of Open Data platforms (not often updated), as well as public awareness and applicable laws vary considerably from country to country and city to city. Germany and Austria have both governmental and independent organizations gathering and releasing data to the public domain, organizing events and hackathons so that developers use the available data to create useful civic tools. From data released, developers created WANN ([http://subzero.eu/wann/](http://subzero.eu/wann/)), a mobile application that provides citizens with what the best combination of public transport possibilities is to reach their desired destination. An example of challenges exists in Turkey, which has participated in the Open Government Partnership since 2011, though has still not realized any of the points specified on its action plan ([http://www.opengovpartnership.org/countries/turkey](http://www.opengovpartnership.org/countries/turkey)). As Mr. Elshani, Head of e-Governance in Kosovo, pointed out during the debate following our workshop in Pristina, countries have first to face issues like the need of infrastructure, including collecting and categorizing data before starting to release it.

Our experience shows that citizen engagement exists where we might not have expected it, namely in locales riddled with corruption and security concerns. While socio-economics and political are significant factors impacting how quickly Open Government and Open Data initiatives will be created, citizens will play an increasingly significant role in expanding data sharing initiatives.

### Data activism for local problem solving in India

Not only in the Balkans but also in the Global South (Africa, Latin America, Middle East, India and developing Asia), the lack of resources or even democratic and participatory policies poses no barrier to establishing OK projects. In India where around 40% of the adults are illiterate (Total adult literacy rate of 62.8% in 2008–2012) and 30% of the population lives below 1.25 dollars a day (Population below international poverty line of US$1.25 per day (32.7%) in 2007–2011), it could appear inappropriate to prioritize the launching of Open Government initiatives to promote the use of Open Data or encourage non-business-oriented models. But what actually happens is exactly the opposite. The number and quality of projects is high, and we could find various initiatives in most of the Indian regions we visited. Communal enthusiasm for Open Cultures, particularly in southern regions and the megapolises of Bangalore and Hyderabad is equally remarkable. Evidence of the momentum for establishing widespread Open Cultures is noticeable by the existence of the national Open Data platform and the very active Datameet ([http://datameet.org/](http://datameet.org/)), a small but growing community of like-minded Open Source supporters and data activists from diverse backgrounds situated all over India. Perhaps exactly because they face, directly or indirectly, problems related to poverty, access to clean water, health, the impact of economical and social differences within the larger Indian society, the members of Datameet group have initiated projects using technology and open resourced data to build effective technological solutions for local everyday problems. For example, the NGO Transparent Chennai ([http://www.open-steps.org/meeting-workshop-transparent-chennai-chennai-india/](http://www.open-steps.org/meeting-workshop-transparent-chennai-chennai-india/)) has gathered and analyzed information about the location and quality of existing public toilets in Chennai, helping the municipality to have a better understanding of the current needs of the local population. This case, illustrates how governments can benefit from citizen led efforts. An efficient data-analysis strategy, and a certain task, along with committed and very well prepared organizations or citizens can generate important knowledge to benefit both the public as well as government, which can plan how to solve unmet public needs.

Another effort is Karnataka Learning Partnership ([http://www.open-steps.org/meeting-workshop-with-klp-cis-bangalore-india/](http://www.open-steps.org/meeting-workshop-with-klp-cis-bangalore-india/)), which has built a similar platform mapping regional data about the schooling system in Bangalore. By collecting demographic information about more than 1.2 million students and compiling data about the status of the schools’ facilities, the Karnataka Learning Partnership can identify which specific facilities need improvement.

Also in India, we had the chance to witness the use of the open principles in the academic context. In the northern university city of Vadodara, the team leaded by Mr. Mayank Trivedi, coordinating the Smt. Hansa Mehta Library, has released an online platform ([http://14.139.121.106/OKGW/](http://14.139.121.106/OKGW/)) where students and researchers can access valuable material freely. An interest in making peer-reviewed, scholarly and research information available for everyone is growing in India. Although, Open Access is still at its starting phase, Indian universities are already committed to accelerate innovation this way. Not only do they see advantages to increasing the visibility of this type of open sharing but in addition they realize that the impact of sharing on research will be to improve its efficiency.

### Asia: South-East region lags behind Hong Kong and Japan

Thailand and the less developed countries Cambodia and Laos displayed far less awareness, government-citizen engagement, number or quality of OK initiatives as was evident in India. Our findings elsewhere in the world had prepared us to discover the same in this area of South East Asia. However to our surprise this was not the situation. Initiatives were difficult to identify and the concept of OK was all but unknown.

Nevertheless, two interesting initiatives were discovered: Open Development Cambodia and the Mekong River Commission. Both exemplified awareness of the value of OK for local problem solving. Open Development Cambodia ([http://www.open-steps.org/meeting-open-development-cambodia-phnom-penh-cambodia/](http://www.open-steps.org/meeting-open-development-cambodia-phnom-penh-cambodia/)) manages the single online platform available in the region where local data is being aggregated and shared. The map visualizations available on their site are used as a valuable research resource for various fields, from natural environment to election results. The Mekong River Commission ([http://www.open-steps.org/meeting-mekong-river-commission-vientiane-lao-prd/](http://www.open-steps.org/meeting-mekong-river-commission-vientiane-lao-prd/)) in Vientiane, is an intergovernmental agency involving Laos, Thailand, Cambodia and Vietnam whose mission is to improve water management in the Mekong Basin so as to manage the natural resources of the area efficiently. The agency built a data portal with the aim of gathering and sharing information on water quality, water-level and other indicators for scientists, researchers and/or journalists to analyze and producing maps and reports detailing the status and factors delineating urgency. National policies and the strict rules governing each of the member governments has resulted in a cooperative structure that requires applicable fees and copyright law compliance. Thus, access and re-use is not maximally open, thus lowering the potential for innovative solutions. Here the absence of cultural and political will impede the creation of genuine knowledge sharing initiatives and the societal benefits that can be realized from such efforts.

The difficulties identified here are not representative of OK initiatives in Asia, as projects were more easily found in Hong Kong and Japan. The hackerspace DimSumLabs and Open Data Hong Kong ([http://www.open-steps.org/workshop-dimsmlabs-hong-kong-hong-kong-s-a-r/](http://www.open-steps.org/workshop-dimsmlabs-hong-kong-hong-kong-s-a-r/)), are communities of Open Cultures made up of
Open Knowledge enthusiasts working in a region that values the principles and benefits of knowledge sharing, hence offering a favorable environment for Open Data and Open Government initiatives. Hong Kong has a special administration, the existence of the Open Data platform (http://www.gov.hk/en/theme/psi/datasets/) and Hong Kong’s Open Data Challenges illustrate its progressive environment.

Japan similarly embraces these principles. Here where natural disasters and crisis management remain a major public policy concerns, the government has been trying to improve disaster management for many years. Recently, it adopted an Open Data/Open Government strategy that can facilitate faster and more effective disaster management. The Mozilla Factory (http://www.open-steps.org/meeting-mozilla-factory-tokyo-japan/) produced a solution, the Mozbus, which reacts to a crisis situation by enabling disaster victims to share data and knowledge with authorities, thereby improving disaster management. The Mozbus is a camping van morphed into a nomadic web factory, which travels to remote areas damaged by natural disasters in order to provide Internet infrastructure. In the first hours after a natural event such as an earthquake or tsunami, a working internet connection can effectively save the life of citizens, who if equipped with smart phones, can report to the emergency services with information such as the location of victims or status of the road infrastructure, building collapses, or perceptions of casualties. Enthusiasm for Open Cultures is displayed by the project’s workspace, with consists of an open space equipped with tools such as 3D printers and impressively equipped functional furniture where anyone can come to learn and work on the web. Notably, the furniture design is released under Open Source licenses; that is, free to use, re-use and re-distribute.

A fertile environment for openness also requires commitment

We did not know this when we started our journey but Open Knowledge in South America is already a trending topic. Not only are the quality and diversity of the initiatives impressive but so too is their scale. In Chile, the OK momentum assembles participants from all sectors, national and local administrations, public agencies like INRIA Chile (http://www.open-steps.org/meeting-inria-chile-santiago-chile/) and the Independent Agency for Transparency (http://www.consejotransparencia.cl) and other groups from the civil society, not to mention Poderopedia (http://www.poderopedia.org/), Ciudadano Inteligente (http://ciudadanointeligente.cl/) and STGO Makerspace (http://www.stgomakerspace.com/), the most active makerspace in all South America. They all advocate citizen empowerment through the re-use of data and knowledge available to the public domain.

In Belo Horizonte (http://www.open-steps.org/digital-tuesday-belo-horizonte-brazil/), which is one of the richest cities in Brazil, and even in the Americas (https://en.wikipedia.org/wiki/List_of_Brazilian_states_by_gross_domestic_product#Listings), the regional administration has built Data Viva (http://dataviva.info/), an Open Data platform that aims to boost economic growth in its region, Minas Gerais, the second most populous state in Brazil, by disseminating economic data and applied business knowledge (specifically how to conduct business and attract investment) to entrepreneurs and companies. In addition, local government uses the platform to help define its economic policies.

In Argentina, the team of La Nación Data (http://www.open-steps.org/meeting-la-nacion-data-buenos-aires-argentina-2/) applied Open Data principles to journalism in order to innovate the conventional newsroom by enabling journalists to collaborate with developers, designers, and policy makers to create projects, such as delivering intern training in data journalism virtually. La Nación Data’s effort is hampered by the absence of legally binding and enforceable freedom of information laws. As a result delays and other difficulties in accessing data thwart project progress. Nonetheless, despite these obstacles the value and potential of ‘data journalism’ has already been proved. Through their project “Gastos del Senado”, which extracted and analyzed the data from over 33,000 scanned documents on public expenditures downloaded from governmental sites, several major irregularities involving public funds were discovered. The significant impact of the project was evident in the fact that publicizing this discovery spurred citizens to join the investigation process. A remaining large quantity of papers in need of analysis led to the creation of Voz Data (http://vozdata.lanacion.com. ar/), a platform enabling everyone to scour documents and upload relevant data that bears on the investigation. Since VOZDATA’S launch in early 2014, over 350 citizens have engaged themselves ‘freeing’ the data from more than 3400 scanned documents. The goal is to turn the scanned information into machine-readable data, thereby creating the possibility to study it using software tools, with the goal of bringing transparency to how public money is actually being used. Tools that produce visualizations of the data permit digest large of information more efficiently.

Importantly, data can only be freed for use and re-use if it is of good quality and in a format that permits conversion to machine-readability. Often data exists in PDFs, which is a non-reusable data format, and therefore a considerable limitation to Open Data initiatives. AGESIC (http://agesic.gub.uy/), the Uruguayan Agency for E-government, is striving to improve the quality of data by converting non-reusable formats to usable formats through its Open Data portal.

Because the OK community in South America is so rich, significant work has been done to facilitate member interactions to promote learning and collaboration. The following projects exemplify the depth of commitment to OK and the success of various OK initiatives. Abrelatam (http://www.abrelatam.org/) is a Pan-Latin American unconference on Open Data and Transparency, which increases public awareness and know how. Similar events are held in other regions. A Pan-Latin American Open Data platform has been set up, Open Data Latin America, (http://www.opendatalatinamerica.org/home/) to share data throughout the region. Interestingly, this site was built with Junar (http://www.open-steps.org/interview-with-diego-may-co-founder-of-junar-palo-alto-usa/), an Open Data platform solution company that employs a commercial, versus Open Source, business model. Junar helps administrations, among others, build Open Data platforms. As its co-founder Diego May conveyed, Junar’s rationale for a commercial business model is based on a disinterest in providing only a free code, without providing knowledge about how to implement it efficiency. Instead, Junar offers a complete solution package, including hardware, technical resources and know-how, allowing their clients to have a finished product for a total cost that could be lower than the cost of ownership. This novel solution strategy works because adapting a free code can involve higher costs subsequently if the client lacks all the required resources.

Nevertheless, the most ambitious project we identified in South America is the project called FLOK Society (http://www.open-steps.org/flok-society-quito-ecuador/) in Ecuador. This initiative is a cooperation between the Ministry of Knowledge, the Secretary of Higher Education and the National Institute of Higher Education and extends the government’s National Plan for principles of common good, free and equal access for all and Open Knowledge of all types, from education to the agriculture, in accordance with the local cultural context.

One such project involved a team of Ecuadorian and international researchers elaborating 15 strategic documents that have been the starting point for the open decision-making and implementation process. These documents were presented at an event called “The FLOK summit”, which took place last May in the Ecuadorian capital, Quito. Because the benefits of sharing knowledge have to be explained and debated at a grass roots level in Ecuador, the team organized workshops in the country and invited everyone to join the summit. Ecuadorian
will be the first beneficiaries, and their support and collaboration are undoubtedly essential for the success of this initiative.

Notably, even FLOK society is not immune to access restrictions resulting from freedom of information laws which do not support a favorable environment for Open Knowledge sharing. Because, OK initiatives depend of the commitment of not only those who stand to benefit but also those who control access, even in South America, there remain many administrations to convince.

One of the biggest challenges is broadening citizen awareness outside the OK community. This is true for not only the entire South American continent, but also everywhere else in the world as well.

Open science: for research and its beneficiaries everywhere

Open sharing of scientific research offers seemingly limitless benefits. The rapidly advancing world of genomics, and wide spread acknowledgement that massive amounts of data are needed to analyze in order to enable the delivery of genomic medicine, make genomics rife for OK initiatives.

DNADigest (http://www.open-steps.org/interview-with-fiona-nielsen-dnadigest-org-cambridge-uk/) located in the UK, is one such effort that aims to provide a simple, secure and effective mechanism for sharing genomics data among researchers without compromising the data privacy of the individual contributors. The sensitive datasets are anonymized before being aggregated on a common repository and then ready to use, thereby enabling a data set’s full potential to contribute to the medical research. DNADigest facilitates the alignment of patient and researcher interests, though achieving its goals is challenging. All stakeholders (academics, industries and patient groups) must agree to collaborate. While sharing papers is common practice among scientists, building common infrastructures, such as those that connect existing data Bio repositories or link data management systems with a common API (Application Programming Interface), is not. To accomplish these tasks, advocates are essential to encourage support for the need to build a community around the idea of sharing its work base. To create this type of commitment, the DNADigest hosts events like hack days across the UK and in the Netherlands. DNADigest enables researchers to gain greater opportunities for developing research, sharing data sources and data results, identifying potential collaborators and for visibility. Finally, the principles of Open Science solve a significant funding issue by allowing scientists to scale up their research, which is nearly impossible with traditional research-funding methods. Given the increasing push from funding agencies to require sharing papers is common practice among scientists, building common infrastructures, such as those that connect existing data Bio repositories or link data management systems with a common API (Application Programming Interface), is not. To accomplish these tasks, advocates are essential to encourage support for the need to build a community around the idea of sharing its work base. To create this type of commitment, the DNADigest hosts events like hack days across the UK and in the Netherlands. DNADigest enables researchers to gain greater opportunities for developing research, sharing data sources and data results, identifying potential collaborators and for visibility. Finally, the principles of Open Science solve a significant funding issue by allowing scientists to scale up their research, which is nearly impossible with traditional research-funding methods. Given the increasing push from funding agencies to require

The Open Knowledge directory

In order to inform the public about the different groups and individuals forming the OK communities and reciprocally to make these communities more visible to the eyes of a largely uninstructed public, Open Steps launched the OK Directory (http://directory.open-steps.org), which maps the members of this global and growing Open Knowledge community worldwide. The goal of the directory is to facilitate collaboration between developers, hackers, designers, scientists, computer scientists, and citizens and other OK activists all over the world. Although the trip ended July 2014, Open Steps continues to report interesting OK activities on its blog, thereby fueling the discussion about efforts to tackle current challenges and the latest accomplishments.

Acknowledgment

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More about Open Steps

Website: http://www.open-steps.org
About us: http://www.open-steps.org/who-we-are/
Old Knowledge directory: http://directory.open-steps.org/
Facebook: https://www.facebook.com/openstepsgroup
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