Global Open Policy Report

2016

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Editors

Kelsey Wiens, Alek Tarkowski

Authors:

Africa & Middle East: Kelsey Wiens - CC Canada, Nancy Salem - Access to Knowledge for Development Center

Asia: Tomohiro Nagashima, Tomoaki Watanabe - CommonSphere

Australia: Delia Browne, Jessica Smith - Australia National Copyright Unit, Baden M Appleyard

Latin America: Carolina Botero, María Juliana Soto, Laura Mora - Karisma Foundation

Europe: Alek Tarkowski - Centrum Cyfrowe

North America: Nicole Allen - SPARC

Copyeditor: Isla Haddow-Flood
Graphics: Joanna Tarkowska / Atramento.pl
Project Host: Centrum Cyfrowe
Project Manager: Kelsey Wiens
Survey: CommonSphere

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Introduction

There's been a civic re-awakening around the idea that the public should have better access to the research outputs, educational content, and cultural heritage materials that its tax dollars create. Imagine what would be possible with broad, open access to publicly funded cancer research, crucial open data on climate change, and innovative career education and training materials.

Right now, this is not the case. Interesting and useful digital content developed through the generosity of public investment remains locked up by restrictive intellectual property laws, antiquated procurement processes, and incumbent commercial companies who want to protect their dying business models.

There's a massive opportunity for our society to leverage the near-zero marginal costs of digital copying and the incredible connective potential of the Internet to increase access to knowledge, improve educational opportunities, and help solve some of the world's toughest scientific challenges.

To do this, we need to work to develop smart, forward-looking public policies that flip the default from a closed, proprietary system to an open, participatory, and collaborative one.

There have already been some interesting and impactful policy changes, as will be explored more in this report. But we have a long way to go. Positive policy change is not inevitable. It requires committed advocates, open-minded policymakers, and ongoing public pressure and support for systemic changes that will improve access and opportunities for everyone. Let's do it, together.

Tim Vollmer
Public Policy Manager, Creative Commons

7

Africa & Middle East

18

Asia

27

Australia

36

Latin America

50

Europe

62

North America

70

Open Policy Index

The Middle East & Africa

Africa

Africa is vast. Within it, there are countries with long standing policies and a rich history of open policies. However, there are many countries with very little to no institutional open policies or national open policies at all. Discussions around copyright, IP and access are often set aside for issues around inequality, health and poverty.

South Africa continues to be the leader in open policies both at an institutional level and government level, but Kenya, Ghana, Ethiopia and Nigeria has had successful buy in and are expected to grow in open policy in the next decade. Global funders, institutions and organisations have invested heavily across Africa by supporting capacity building with UNESCO, EIFL, and the Hewlett Foundation representing some of the largest investments in open policy support and capacity building so far.

The Open Access movement has had the largest impact in Africa compared to the activities of other policies. There are 22 countries across the continent that now have Open Access repositories including Algeria, Botswana, Cameroon, Cape Verde, Egypt, Ethiopia, Ghana, Kenya, Lesotho, Morocco, Mozambique, Namibia, Nigeria, Rwanda, Senegal, South Africa, Sudan, Tanzania, Tunisia, Uganda, Zambia, and Zimbabwe. The leaders in Open Access, South Africa, has 24 institutions with Open Access repositories. Kenya has 20 institutions similarly represented.

There are Creative Commons teams across Africa, and Code for Africa has 4 country specific projects. The University of Cape Town-based ROER4D are doing tremendous work showing the impact of OER not only in Africa but across the planet in developing nations. Wikipedians across Africa have been bolstered through projects activated by the WikiAfrica movement, and the South African-based Wiki Loves Women project launched in 2016 across four countries – Cameroon, Cote d'Ivoire, Ghana and Nigeria – and are growing as a movement, in partnership with the Goethe-Institut. The Wiki Loves Africa project similarly has activated focus events in 18 countries over the last two years. WikiZero is the zero rated, or no cost, access to Wikipedia; and the WikiFundi software, that will enable offline editing of Wikipedia, is due to be launched towards the end of 2016. The Knight Foundation has made a strong investment in the

future of data journalism on the continent releasing US$4.7million to Code 4 Africa. Code 4 Africa has also launched the continent's largest repository of open data in the form of openAFRICA.

Meanwhile government and institutions reduce the traction of open policy across Africa. There are multiple issues challenging the region including technology deficits, outdated intellectual property laws, and health, poverty and inequality issues that occupy the government's legislative agenda.

Key policies

There have been a number of successes in open policy across the continent. Open Data continues to be a major stipulation to funders and a motivator to governments looking to support their decisions with data. The African Development Bank Group's project Open Data for Africa believes that "if the fight against poverty is to be won there must be improvements in the quality and the quantity of statistical data across Africa". The ADBG works with partners that include the World Bank, International Monetary Fund, PARIS21 and the United Nations Economic Commission for Africa. Their projects have included, road network improvement in Gabon, the promotion of land rights of forest communities in the Congo Basin, and poverty reduction through action for Women in Chad.

The Council on Higher Education in South Africa announced in a *White Paper for Post-School Education and Training* in January 2014 that there will be support and funding for the collaborative creation of open learning resources across institutions in South Africa. The white paper included a provision for the creation of a licensing framework for open resources and provides support for open source software.

In response to the white paper, the University of South Africa (UNISA) approved an Open Education Resource Strategy in March 2014. UNISA's strategy is noteworthy because of the size of institution. UNISA has over 350,000 students, which makes it larger then the Open University in the UK. It is also the longest-standing distance university in the world and is historically important because it provided higher education to the apartheid political prisoners on Robben Island, including Nelson Mandela. Mandela was UNISA's first alumni to become president of South Africa.

UNISA's Open Education Resource Strategy was developed between 2014 to 2016 and is broken into 5 major strategic priorities. These are the:

1. Development of an effective management system for intellectual property;
2. Establishment of an open licensing framework;
3. Systematic integration of high quality, available OER as appropriate into courses and their subsequent release for use by others;
4. Contribution to the global OER repository of resources; and
5. Evaluation and review of institutional policies to incorporate OER values and processes.

Identify challenges

OER is now becoming the mainstream – supplanting Open Access; although the challenges remain much the same. Costs to adopt Gold Open Access remain far too high for most African researchers, with journal costs remaining excessively high for libraries across the continent. Alternatives like the Gates Foundation mandating Open Access to all will impact the availability of journal articles to African institutions. There is less positive outlook on the use of OERs in developing nations due to perceptions in quality, the threat of OER to systems, and the organisational structures and individual educators ideas of OERs adding to their already overloaded workloads.

Knowledge and access to ICTs remains one of the major challenges to Open Policy being adopted in Africa. Limited connectivity, low levels of digital literacy and geographical remoteness further divide inequalities and marginalise vulnerable groups across Africa. For OERs, for adoption to continue there needs to be a heavy investment in print and mobile options, and options that do not require constant connectivity.

Irene Onyancha of the United Nations Economic Commission for Africa presented on challenges of achieving the Post 2015 SDGs in Africa. In her paper titled, 'Challenges of Achieving the Post: 2015 SDGs in African Societies', she focused on challenges such as the right of access to information, developing access to information legislation, supporting open information environments, access to ICT infrastructure and Public libraries as the information service providers.

Identify opportunities for growth.

With the launch of SPARC Africa, there is the anticipation of additional support for Open Access in Africa. SPARC Africa "will prioritise creating a development forum, which will assist with capacity building and infrastructure to open up the African continent's scholarly output; making it accessible and discoverable for the international community. The Chapter will create this developmental forum, by

tapping into the Ubuntu nature, which is an [southern] African [philosophy] meaning, 'humanity to others' ". The Global OER conference, Open Education Global, will be hosted in Cape Town in 2017 and will also coincide with the 10th anniversary of the Cape Town Education Declaration.

In East Africa, the Kenya Institute for Curriculum Reform (KICD) is a government institution that is looking at developing open policies. During 2016 they are working on a major curriculum overhaul of Early Childhood Development (ECD), Primary, Secondary and Special Needs Education. With the ED10 Consortium they are looking at developing policies that will make it easy for education practitioners to adopt, and develop open educational resources for schools.

MENA Region

The call for openness globally has been increasingly felt in the Middle East and North Africa. While there have been several promising instances of open policy initiatives, the region as a whole continues to face challenges in developing comprehensive open policies. A few countries have taken the lead in open government policy, with almost all countries exhibiting some activity – many times through online open government data portals or pages. Advocates have continued to argue for a change in attitude towards openness, highlighting the importance of participation by civil society and citizens.

In the region, there is varying legislation in regards to openness. Three countries, Yemen, Jordan and Tunisia, have in place Freedom of Information legislation, to different effects; while Morocco and Lebanon have both developed draft laws. Other countries may have provisions on access to information, for specific sectors or actors in other laws. Much of this legislation, however, remains fragmented, and often does not subscribe to common standards of openness, particularly in practice. Similarly, many have noted that online portals are not frequently updated or easy to navigate.

One notable initiative is Qatar's Open Data Policy, which requires government bodies to release non-confidential raw data online, overseen by the Ministry of Information Technology, ictQatar. Another notable initiative is in Tunisia, which was the 2015 Africa recipient in the Open Government Partnership Awards for an online system

that opens up public procurement procedures. The Ministry of Finance in the United Arab Emirates has also been praised for publishing its annual budget in an accessible excel format. Currently, Jordan and Tunisia are the only members of the international Open Government Partnership, where participating governments must endorse an open government declaration and devise and a country action plan.

Civil society has also played its part in supporting openness and making use of open government data across the region. One example is Mwazna, an Egyptian initiative, that uses data from the annual budgets to create comprehensible visualisations on government spending and finance.

Case Studies

Code for Africa

Code for Africa currently has initiatives in Ghana, South Africa, Nigeria, Ethiopia, and Kenya with projects planned during 2016 in Morocco, Rwanda, Senegal, Tanzania, Tunisia, and Uganda. Code for Africa are funded by the Knight Foundation with an investment of US$4.7million. The project intends to make a large impact on data journalist in the region. With this in mind they have launched the continent's largest repository of open data, openAFRICA which is to create a "Library of Congress of Data for African for use by Citizens, Media, Activists, Governments and Civil Society".

Kenya's successful project and West Africa's largest news site, SaharaReporters, partnered with Code for Nigeria to launch the *Dodgy Doctors* tool. A survey carried out in Nigeria found that more than 50% of the population had received 'treatment' from 'quacks' or unlicensed individuals posing as doctors. These 'quacks' treat everything from malaria or pregnancy to typhoid.

Using the *Dodgy Doctor*, users can easily check if their doctor is properly registered and in good standing with Medical and Dental Council of Nigeria (MDCN). The tool also allows citizens to check the accurate costs of prescription drugs and find the closest hospital. The tool empowers users by allowing them to report 'doctors' whose names are not on the database. These reports are then followed up by a journalist from SaharaReporter and the MDCN's Inspectorate.

11

In January 2016 Code for Africa launched impactAFRICA. impactAFRICA is a US$500,000 fund offered for data driven investigative projects. Currently impact AFRICA is taking applications from six African countries: Ghana, Kenya, Nigeria, South Africa, Tanzania and Zambia. "We will help newsrooms use data and digital tools to produce the type of hard-hitting reportage and compelling storytelling that shapes public discourse and gets the attention of policymakers," says impactAFRICA manager Haji Mohamed Dawjee.

Key links:

- https://medium.com/code-for-africa/impactafrica-data-journalism-fund-kicks-off-with-call-for-investigative-proposals-33312b205052#.oi7rfi3g0
- https://medium.com/code-for-africa/your-doctor-is-a-con-artist-e9e9e066d385#.w7bcenz8n
- http://www.aljazeera.com/programmes/africainvestigates/2014/11/nigeria-fake-doctors-20141126132723604457.html
- https://africaopendata.org/

African Storybook Project

The vision for the African Storybook Project (ASb) is "Open access to picture storybooks in the languages of Africa. For children's literacy, enjoyment and imagination." The literacy rate across sub-Saharan Africa for individuals over 15 years of age is 64.0% (2015). The key obstacles to improving literacy is the lack of interesting, enjoyable, age-appropriate stories for early readers in languages that are familiar to them. Current publishing models are unable or unwilling to provide a variety of books to address children's needs.

In 2013, the South African Institute for Distance Education (Saide) launched the African Storybook project funded by ComicRelief UK. The ASb is a website-based platform that allows children to easily find enjoyable stories in their mother-tongue. The platform allows all stories to be translated, adapted to different reading levels, downloaded, printed or used on mobile devices. Further, it provides children and adults alike the ability to upload and easily create new stories.

As of April 2016 there are more than 500 unique stories in 70 of the languages spoken in Africa, including English, French, and Portuguese. Taking into account the translated versions, there are over 2500 stories in the ASb collection.

ASb sees open source publishing as key to facilitating multilingual literacy development in Africa. They use Creative Commons CC-BY 4.0 International as their default licence. SAb has a mix of SAb commissioned stories and newly written individual stories. In those instances where stories have been previously published by organisations or individuals who are not willing to risk for-profit publishers financially benefiting from their work, they can choose a CC-BY-NC 4.0 International licence. This use of the more restrictive licence is a rarity.

In 2015 an exciting independent project, the "Global African Storybook", sprung up with researchers at the University of British Columbia. The "Global African Storybook" project has the goal of translating the open-license ASb works into non-African languages so that African stories, lessons and adventures can be enjoyed by children all over the world.

The Global African Storybook Project found that many children stories cross regions, languages and hemispheres. For example, that stories found in Mozambique resonate with children speaking Creole. The "Global African Storybook" project's focus on "minority and endangered languages provide other examples where children's literature can be extremely difficult to find."

Anyone can participate by translating existing stories using a super simple translator tool or creating new ones in the same spirit of sharing, literacy, and open access as the African Storybook Project.

Key links:

- http://www.africanstorybook.org/
- http://global-asp.github.io/about/
- http://www.teachingenglish.org.uk/sites/teacheng/files/E291%20Cape%20Town%20Publication_A4_FINAL_web.pdf
- http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS&popupcustomise=true&lang=en#

EIFL Electronic Information for Libraries

The Electronic Information for Libraries (EIFL) continues to have strong reach across Africa. EIFL Africa ensures that libraries stay engaged and up-to-date in movements

13

including Open Data, Open Access and affordable access to ICTs. EIFL actively works in 16 countries across Africa including Angola, Botswana, Burkina Faso, Congo, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Namibia, Senegal, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

Recently, EIFL has reviewed the perception of public libraries in six countries: Ethiopia, Ghana, Kenya, Tanzania, Uganda and Zimbabwe. The key findings were that "most people believe public libraries have the potential to contribute to community development in important areas such as health, employment and agriculture. However, libraries are small and under-resourced, and most people associate them with traditional book lending and reference services, rather than innovation and technology."

Since 20008, EIFL has been operating in Kenya, working in partnership with the Kenya Libraries and Information Services Consortium (KLISC). KLISC has an active membership of over 100 members including university libraries, college and polytechnic libraries, research libraries, national libraries, and special libraries. Through advocacy, partnership and capacity building, EIFL has supported the national and institutional open access awareness, which has resulted in the launch of a number of open access repositories across the country, including the globally recognised institutions: The University of Nairobi, Kenyatta University, and Jomo Kenyatta University of Agriculture and Technology. All three universities have now introduced open access mandates.

The University of Nairobi recently adopted an Open Access policy and successfully launched their Open Access repository, which as of March 2015, has more than 76,000 new documents. Not only does Open Access allow students more access to knowledge, but it is 'opening up a wealth of knowledge from Kenyan researchers to the world'.

"When we get to a point where we are restricting access to information we are denying part of the populations their right to develop. Their right to advance themselves," says medical student Nicholas Matuku at the University of Nairobi.

Once their policy was established, the library at University of Nairobi began mentoring smaller institutions. EIFL and the University of Nairobi instigated an 18-month project that advocated for the adoption of Open Access policies and increased knowledge of accessibility to repositories. Now rural Kenyan doctors are using sources like PubMed

14

Central to have immediate, online, free and unrestricted availability to medical knowledge.

Key links:

- http://www.eifl.net/country/kenya
- http://www.eifl.net/resources/perceptions-public-libraries-africa-0
- http://eifl.net/blogs/power-open-access
- http://eifl.net/blogs/video-university-nairobi-opens-their-research-world

Open Book Project in Saudi Arabia

The Open Book Project was built to support the benefits of Open Education to the Arab world by expanding access to free, high-quality Open Education materials in Arabic, with a focus on science and technology.

In 2014 a select group of fellows from the MENA region went to the USA for three weeks to visit organisations that are involved in OER work. This trip was followed by a small team of OER experts from the USA and Canada visiting a select subset of the Open Book Project fellows in MENA countries to assess what had happened once the fellow's had returned home. The visitors were also able to make additional recommendations related to the OER projects they had initiated. This included visits to Open Book Project fellows in Tunisia, Saudi Arabia and Qatar.

A follow-on convention was held in December 2014 in Sharjah in the United Arab Emirates at the ALECSO-sponsored Arab Forum for Scientific Research and Sustainable Development. Almost all the original Open Book Project participants attended, and have built up a strong collaborative network.

The objectives of the Open Book Project are to:

- Implement open licensing in the MENA region that enables anyone to use, adapt, and share these education materials;
- Build partnerships between the US and MENA region to make learning materials open, free, and connected to Arab educators, students, and classrooms;
- Lower the geographic, economic, and gender-based barriers to learning;

- Create Open Education Resources that anyone with access to the Internet can read, download, and print for free, or adapt to meet the local needs of their classrooms or education systems;
- Provide high-quality, college-level science open textbooks in Arabic;
- Support professors and intellectuals while they create their own open courses;
- Explore and support the benefits of OER for governments, institutions, faculties, students and the public, specifically examining how OER affects teaching and learning practices including the inter-relationships and synergy of OER with open access, open data, open policy, open science; and
- Create a community network of OER practitioners across the MENA region that communicate and collaborate with each other.

Saudi Arabia has contracted with Creative Commons HQ to finalise their OER policy and future outcomes are anticipated in 2016. One of the great outcome of Open Book Project was the creation of CC Lebanon by one of the Open Book project fellows.

Asia
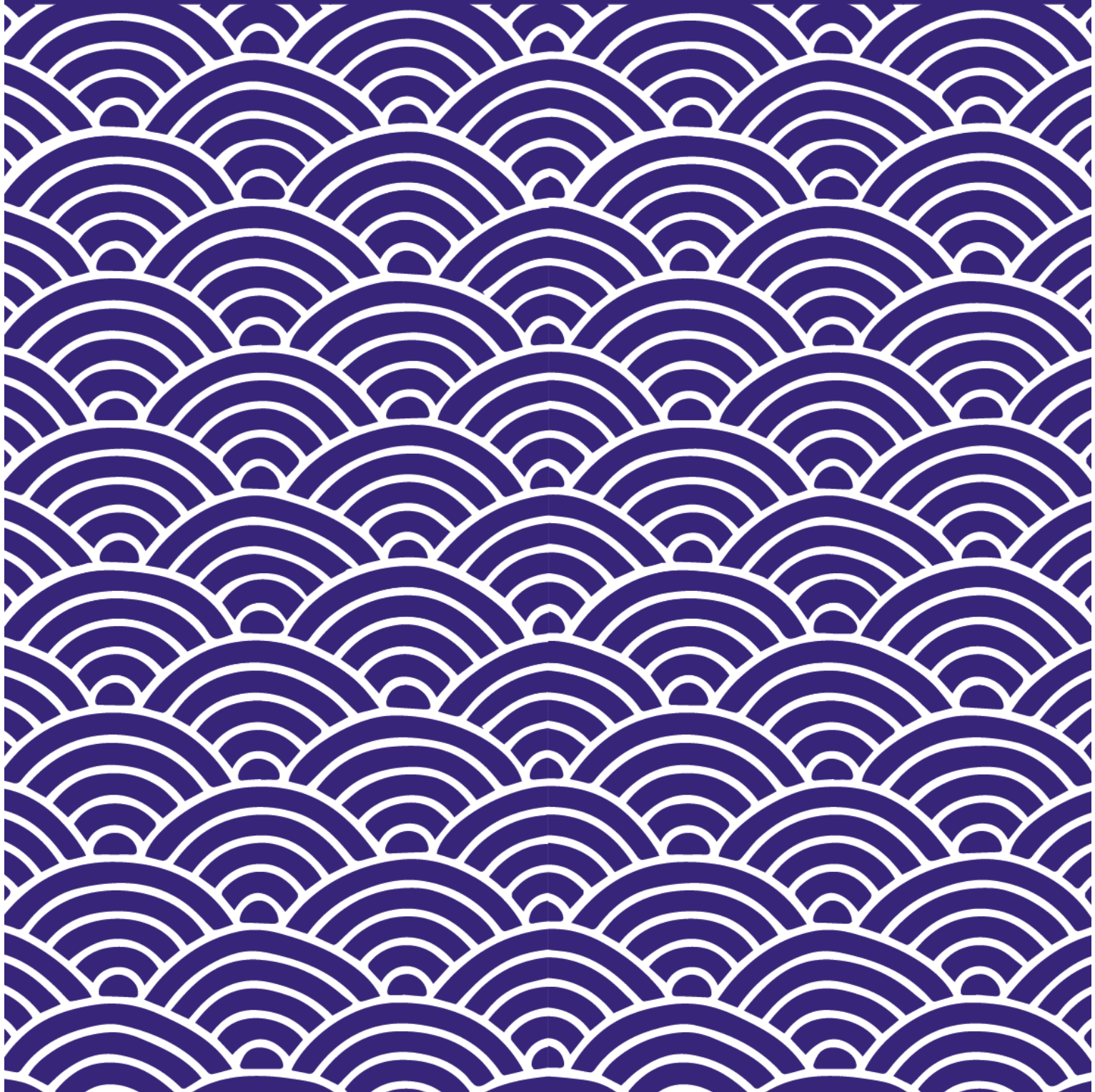
Asia

Asia is probably one of the more challenging regions when it comes to regional networking, due to its geography and diversity. Diverse languages, a number of countries being surrounded by the sea, and differing levels of development are some of the hurdles to forming an in-region network around a shared interest. The boundary of the area is less commonly perceived. East, South East, and South Asia often interact and network thematically in open movements, it seems. But the CIS countries in Central Asia, and Near and Middle Eastern countries could be called West Asia.

International policy or political networks rarely cover all of these, except perhaps the Asian Cooperation Dialogues. ASEAN (Association of Southeast Asian Nations), SAARC (South Asian Association for Regional Cooperation), and EAS (East Asia Summit) are some of the examples of international networks covering only a part of the region. It is not rare to witness that international frameworks and classifications involving Asian countries also involve countries in adjacent regions, such as the Arab League involving North African countries, or some Asia-Pacific frameworks involving East Asian and Pacific countries. The International Telecommunications Union, for example, employs regional categories involving countries in Asia and neighboring regions, such as Asia, Pacific and Arab Countries, for some of its statistics. This type of issue exists for other regions, but Asia experiences it more than others. Faced with this diversity and lack of coherence, this section relies on many international indexes and organisations to build an understanding of the state of the affairs of the region.

Regardless, it is possible to see that the open movement is taking place in many countries in multiple ways. There are a wide range of Creative Commons affiliate teams that exist in Asia. These are Azerbaijan, Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Japan, Kazakhstan, Laos, Malaysia, Mongolia, Philippines, Singapore, South Korea, and Vietnam. Some of these were created in the early 2000's. Others, like Mongolia, are newly emerging.

Aligned open movement organisations like Wikimedia Chapters, Open Knowledge Foundation offices, and FabLabs also exist across the region. Wikimedia chapters exist in Bangladesh, Hong Kong, Indonesia, India, Israel, and Taiwan. Open Knowledge

Foundation chapters and local groups exist in Bangladesh, China, Hong Kong, Indonesia, India, Japan, South Korea, Nepal, the Philippines, Pakistan, and Taiwan. FabLabs exist in Afghanistan, China, Indonesia, Japan, Myanmar, Vietnam, Singapore, South Korea, Taiwan, and Thailand.

Open Government Partnerships have several participating countries. These are Armenia, Indonesia, Mongolia, the Philippines, Sri Lanka, and South Korea. There are Open Education Consortium member institutions in many countries, most notably Afghanistan, China, Indonesia, Japan, Malaysia, Mongolia, Pakistan, Singapore, South Korea, Taiwan, and Vietnam. CODATA's national members include China, Japan, India, Indonesia, Mongolia, and South Korea.

Given that they are not necessarily close to each other, nor share a common language, ethnicity, religion, or other elements, it is perhaps natural that there are no overarching policy initiatives at a regional level. They also do not necessarily learn from each other. It is worth repeating that each country's development level (and therefore focus) varies dramatically, with some countries still combatting such issues as illiteracy and electrification, while others focus on making advances in knowledge-intensive industries.

Key policies

Implemented and in development – the successes and pitfalls of the current policies
Key open policies are difficult to identify, but in general, online data provision is happening in many countries and across many areas of data. If and when open licensing happens, these practices would become Open Data. Open policies often face the question of effects or returns on investments. Even with strong political leadership, evidence of success has the potential to influence sustaining the practice after leadership change, increasing the commitment and scope of practice, etc.

One pitfall with Open Data is that proper measurement of its impact is not easy. While there are a number of studies looking into the economic effects of Open Data, the level of specificity for each country from those studies may turn out to be unsatisfactory to maintain the level of commitment required for an Open Data policy and its implementation. Open Data is the one open policy that is expected to directly generate economic benefits to society. Yet the use of Open Data for commercial use is not easy to track, and the resulting economic benefits are difficult to assess. Some countries

19

find anecdotal success cases using Open Data, but it seems that not every country finds one.

Taiwan's first place ranking in global Open Data is an impressive example. It is notable that, like UK and the US, a broader political movement has encouraged strong political leadership to enhance transparency. This kind of success indicates that the top-down approach works with Open Data policies. Politically, across Asia, there are some governments who are not that keen on embracing openness and change, and not all political uprisings end well. Demand for popular empowerment, transparency, or a stronger democracy could result in suppression.

Key trends

Without access to a region-wide view on the current state of affairs, we must resort to using trends as the indication of a proliferation of data provision, that can be observed in the Open Data Index and Open Data Barometer. These global surveys indicate that the practice of providing government-held data sets is common to many countries around the world, including Asian countries. Open licensing is still not done in many countries, making these practices not quite "open" data, but data availability indicates some level of government policy.

Identify challenges

One major challenge for some of the countries in Asia is infrastructure. Such things as electricity, network infrastructure, literacy, or even solutions to military conflicts and severe poverty may need to take precedence before, say, open educational resources can make a difference in some countries or part of the countries. Another is the orientation for transparency. Availability of the Internet is still limited in some countries – including some large-sized countries such as India and Bangladesh. This means that entities converting the networked information resources to provide access for the world of the unconnected are important. In order to deliver the benefits of Open Education, Open Data, or other openness policies targeting those people.

Culture and politics may work as another challenge in some countries. There are many Asian countries placed in the lower section of the press freedom index, and rated low on assessment pertaining to the rule of law, control of corruption, and absence of violence. In some of those countries, if Open Data is seen as a tool to increase transparency, it may face difficulty gaining substantial support.

It should also be noted that the awareness of copyright usually goes hand in hand with open polices – when learners, educators, scientists, data analysts, and others think that information resources are generally not able to be used without breaking copyright law. In these societies, the demand for open licensing of these resources becomes strong. However, some Asian countries do not have such strong awareness, which often means that compliance of copyright law is also weak.

Identify opportunities for growth

One major opportunity for the advancement of open policies within the region lies with the policies of large countries such as India, China, Pakistan, Bangladesh, Japan, and the Philippines. Asia, as a region, is host to the most countries with more than 100 million people. Once rollout is effected, the numbers of beneficiaries of Open Education in those countries will be sizable. Except perhaps for Japan, where access to education has never been a major concern. Asia is arguably the highest-potential region for Open Education with the greatest number of potential learners who can benefit from extra education. Some of the more developed countries are well placed for Open Data and Open Science as innovation policies.

Open Heritage is still a nascent area of open policy, but one way to see its potential in Asia is that the region hosts more than 2000 living languages (according to Ethnologue). Diversity in language means that there are many potential heritages to be recorded, archived, published, and reused. More than 800 languages are classified as "in trouble" or "dying" within the region.

Case Studies

Open Education in India

India was one of the first counties in the world to embrace the importance of OER, based mostly on its promise of access. India has been tackling the serious issue of limited access to education, in which the Gross Enrollment Ratio (GER) in higher education is about 20.8% in 2010. The county has been faced by an increasing demand for quality education with few available resources. This situation has created the need for open and distance education, and more accessible educational materials that could help Indian higher education.

After various efforts made to promote Open Education across the country, the governmental National Mission on Education through Information and Communication Technology (NMEICT) released its Open Licensing Policy Guideline in 2009. The policy asks for the free provision of educational materials developed as a result of its funding through the use of the Creative Commons Attribution Share Alike license (CC BY-SA). Reflecting the country's situation, where access is key, the guidelines emphasize the need for being open as it encourages the idea that "all information products (content, software and technology) shall be treated as [a] national resource". The guidelines also stresses the importance of the discoverability of OER by stating that provision of materials should follow the commonly-shared ways so that educators and learners can find OER easily. To aid this purpose, the Indian Government initiated the National Repository of Open Educational Resources (NROER). As a repository, the NROER offers resources for all school subjects and grades in multiple languages in the form of educational videos, audio, images, documents and interactive modules, all licensed under CC BY-SA.

The guideline seems to be positively accepted by society, but there are also several problems that need to be addressed. There is still a lack of awareness among those involved in teaching and learning, and an unwillingness to upload educational content to the web as many higher education institutions fear risking their intellectual materials in a competitive higher education market. However, Indian government, higher education institutions, and other stakeholders have put their efforts towards helping OER realise its full potential, by developing an OER repository, actively using Creative Commons licenses, and practicing localised OER activities that fit Indian situation and culture.

Key links:

- Government of India (2014). Gross enrolment ratio (GER) in higher education (18-23 years) for 2010-11: https://data.gov.in/catalog/gross-enrolment-ratio-ger-higher-education
- Bansal, T., Chabra, S., and Joshi, D (2013). Current Initiatives and Challenges to OERs in Indiana Higher Education. *Asian Journal of Distance Education, 11*(1), 4-18. http://www.asianjde.org/2013v11.1.Bansal.pdf
- National Mission on Education through Information and Communication Technology (2009). Open Licensing Policy Guidelines: http://www.sakshat.ac.in/Document/OER_Policy.pdf
- National Repository of Open Educational Resources: http://nroer.in/home/

- WikiEducator (India): http://wikieducator.org/India

Open Science in Japan

In November 2014, seeing the importance of Open Science to further advance the research and development within academia, the Japanese Cabinet Office started the discussion on Open Science within the Expert Panel on Open Science based on Global Perspectives.

Recognising the global trend toward openness in research, the Japanese government decided to actively promote Open Science, building on the continuous effort made to-date in Open Access in higher education. In the 5th Science and Technology Basic Plan, which indicates the governmental policy plans from 2016 to 2020, the government explicitly stated that any research results, including academic articles and associated data from publicly-funded research, would be required to be openly accessible to the public. Though yet to be decided, those resources would be licensed under a Creative Commons Attribution license, which encourages the active reuse of the resources. It also mentions the need to develop a platform that could be used by data providers to archive data and by re-users to obtain them.

There has been an emphasis to encourage this through the possible collaboration among scientists and citizens not only within the country, but beyond borders. The policy envisions that more innovation happens in scientific research when reusing a variety of resources available on the web, such as experts working collaboratively in different fields across countries, and citizens adding new perspectives to research projects.

Key links:

- Ministry of Education, Culture, Sports, Science and Technology in Japan (2015). Gakujutsu-Joho no Opun-ka no Suishin ni tsuite (Promoting Open Access for Academic Resources): http://www.mext.go.jp/b_menu/shingi/gijyutu/gijyutu4/036/houkoku/1362564.htm
- Ministry of Education, Culture, Sports, Science and Technology in Japan (2016). Dai-go-ki Kagaku Gijutsu Kihon Keikaku (The 5th Science and Technology Basic Plan). http://www.mext.go.jp/a_menu/kagaku/kihon/main5_a4.htm

- Cabinet Office (2015). Promoting Open Science in Japan: Opening up a new era for the advancement of science (Executive Summary). http://www8.cao.go.jp/cstp/sonota/openscience/150330_openscience_summary_en.pdf

Open Data in Taiwan

Taiwan's Open Data efforts and achievements are internationally recognised because of its number 1 position in the 2015 Open Data Census. The 2015 Open Data Census, led by the Open Knowledge Foundation, is the survey of Open Data as used by nations around the world.

Open Data in Taiwan is often discussed in the context of Typhoon Morakot in 2009. While PSI law had existed since mid-2000's, the typhoon and subsequent criticism of the government response led to the government's provision of disaster-related data. The more formal commitment came in 2012 with the Executive Branch's Resolution No.3322. The Sunflower Movement in the spring of 2014, an uprising against the trade agreement between China and Taiwan and its lack of transparency, serves as more background. One of the groups actively engaged in the movement, g0v, is dedicated to government transparency and Open Data.

Put another way, Open Data in Taiwan has developed in conjunction with politics and public opinion. As such, it is difficult to isolate Open Data's own contributions to issues such as disaster preparedness and trust in the government. But the same movement toward transparency instituted a more formalised public consultation mechanism, which in turn raised awareness of Open Data. One major outcome of all these changes is the increased ties between government and civic sectors.

There are currently more than 50 Open Data programs that range from tourism to transportation, and from disaster-preparedness to health. Open Data often receives attention because of the government's underperformance in disaster management – the typhoon in Taiwan and the earthquake and nuclear meltdown in Japan were some of the examples. With thousands of disaster-related data sets published and some programs developed, Taiwan's preparedness is somewhat improved now.

Key links:

- Knowledge Dialogues (2014) Open Data in Asia: https://knowledgedialogues.files.wordpress.com/2014/07/open-data-asia-09-2014.pdf
- Science & Technology Law Institute, Institute for Information Industry (undated) Open Government Data in Taiwan: https://stli.iii.org.tw/en/content_page.aspx?i=6432
- S. Roubini and J. R. Tashea (2014) After Sunflower Movement, Taiwan's g0v Uses Open Source to Open the Government, The Tech President, November 5 2014: http://techpresident.com/news/wegov/25339/sunflower-movement-g0v-taiwan-open-government
- T. H. Schee (2015) Global Open Data Index 2015 – Taiwan: http://blog.schee.info/2015/12/09/global-open-data-index-2015-taiwan/
- data.gov.tw/applications
- J. Stray (2013) How does a country get to open data? What Taiwan can teach us about the evolution of access. NiemanLab: http://www.niemanlab.org/2013/04/how-does-a-country-get-to-open-data-what-taiwan-can-teach-us-about-the-evolution-of-access/
- W. Ritter, T. Watanabe, T. Saengsiri, T.H. Schee, and K. Booth(2012) Open data policy development in Asia, Asia Pacific Regional Internet Governance Forum, 20 JULY 2012: http://2012.rigf.asia/videotranscript/
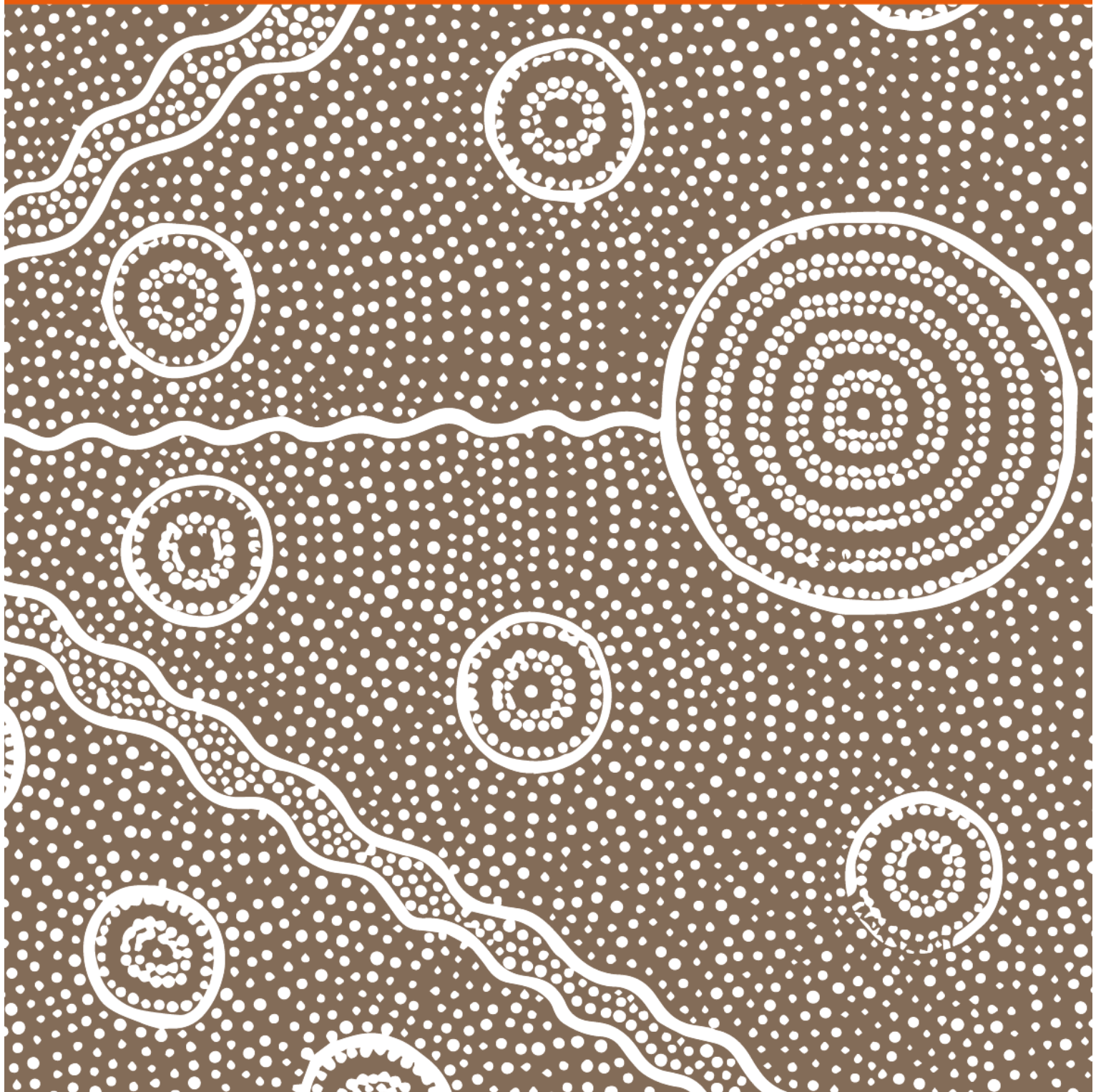
Australia

Australia

Open Government and Research

The Australian Government continues a lumbering advance toward Open Access, with the majority of effort associated with Open Data. The advance happens across the three tiers of Australian government: federal, state, and local.

The Australian Federal Government: Open Education

The National Copyright Unit (NCU) is a small secretariat responsible for copyright policy and administration for the Australian school and TAFE sector. Part of its responsibility is to develop and implement 'Smart copying practices', such as advocating for the use and creation of OER in Australia. As such the NCU works to encourage schools and students to use Creative Commons resources, and encourages creators of educational content to make their materials available under Creative Commons licences, wherever possible, for the benefit of Australian schools and students.

In 2015, the NCU became the new Education Lead of CC Australia and for many years has been an active advocate of Creative Commons and the OER movement. In its role as CC Education lead, NCU advises and runs an education program on Creative Commons licences, and advocates for the use and adoption of OER to the School and TAFE sectors.

Increasing recognition of value and benefits of OER

OER initiatives are emerging at an increasing rate throughout Australia, both at the government and institutional levels.

The Australian Government and education administering bodies recognise the importance of OER and Creative Commons licences and understand that OER policies can impact and assist on a range of copyright compliance and education policy issues. As such, all State and Territory Departments of Education have endorsed AusGOAL and recently all the Australian Departments of Education agreed to licence their websites and publications under CC BY 4.0 where possible. Tasmania, South Australia,

New South Wales, Queensland, Western Australia, Victoria and the Australian Government Departments of Education have licenced their websites under CC BY 4.0 and the other states and territories are in the process of implementation. The non-government school sectors are beginning to license their learning resources under Creative Commons licences to ensure wider sharing and building of knowledge.

National OER Workshops

The NCU is planning a tour of National OER Workshops for late 2016 and 2017 that will focus on curriculum and e-learning developers at Departments of Education and non-government school sectors. The NCU also has new OER and Creative Commons sections on their Smartcopying website (www.smartcopying.edu.au) that includes:

- An OER Toolkit,
- Updated information pack 'Creative Commons for Educators',
- Template copyright/creative commons notices for websites and publications,
- Creative Commons Posters,
- Videos on OER, and
- International best practice.

The NCU and AusGOAL are also currently doing AusGOAL and Creative Commons workshops with Government Lawyers, internal e-learning, curriculum developers, teachers, etc. as requested.

Other OER initiatives in Australia

Other OER initiatives in Australia include Education Services Australia licensing more than 1600 digital learning resources from the national digital resources collection under Creative Commons licences (with many more to come). These Creative Commons licensed resources are available from Scootle. The Australian Curriculum is licensed under a CC-BY-NC-SA licence in order to ensure that the curriculum is widely accessible to teachers and schools and to facilitate the development of teaching and learning resources. The Australian Curriculum, Assessment and Reporting Authority (ACARA) is also in the process of licensing www.acara.edu.au; www.naplan.edu.au; and www.australiancurriculum.edu.au under CC BY 4.0.

The NCU actively encourages not only educational institutions, but also businesses and organisations that wish to provide educational resources to the school sector to also licence their material under either CC BY or CC BY SA. Recent organisations

include UNICEF Australia and the National Rugby League. The NCU expects to see more and more publicly funded educational resources licensed under Creative Commons.

OER Toolkit for Schools Curriculum Developers

The NCU has developed an OER Toolkit for teachers, curriculum and e-learning developers. The toolkit is a practical guide designed to support curriculum creators in understanding and making use of open educational materials in creating curriculum resources and ensuring future materials can be openly licenced. The toolkit provides detailed information on Creative Commons licences and practical advice on how to licence resources under Creative Commons. Importantly the Toolkit developed a 'Best of OER' list to assist people finding high quality OER quickly. In the true spirit of the OER movement NCU's toolkit is built on the fantastic CC licenced works of CC Aotearoa's publication "Free to Mix", the Leicester City Council's "OER Guidance for Schools" and the 'OER Copyright and Licensing Toolkit', by South African Institute for Distance Education.

Copyright 4 Educators on Peer 2 Peer University (P2PU)

The NCU offers one of the foundational courses of Peer 2 Peer University's School Open, and has run the Copyright 4 Educators course through P2PU since 2009. P2PU is a grassroots open education project that organises learning outside of institutional walls and gives learners recognition for their achievements. Copyright 4 Educators currently has one week dedicated to OER and Creative Commons licences, but is in the process of adding an additional week on OER. This course is run online, twice a year with an intake of approximately 60 learners. The course is unbelievably popular. Enrolments for the course usually fill within 24 hours and have, on average, a wait list of 70 people! The average retention rate for the seven-week course is 87% over the past three years. The NCU is looking to run an entire course dedicated to OER in the future.

The Open Government partnership in Australia

In November 2015 the Australian Government committed to finalising membership to the Open Government Partnership (OGP) and a public consultation was launched to develop an Australian Government National Action Plan for open government. The NCU made a submission on behalf of the Australian government and non-government schools sectors asserting that OER policy must be a key component of Australia's First National Action Plan. The NCU submitted that in order to achieve the maximum

benefit from the expenditure of public funds, the Commonwealth Government needed to ensure greater accountability in relation to existing OER policies, by:

- openly supporting and encouraging the implementation of AusGOAL in Commonwealth Departments, ensuring that the body administering any appropriate publicly funded initiative/project/resource is required to openly licence the resources in accordance with the AusGOAL framework, making them widely and freely available;
- openly supporting and encouraging the use of OER and developing an Australian version of GoOpen.

Education Departments across Australia are leading the way by openly licensing their websites and publications, but there needs to be a clear reaffirmation of the Australian Government's commitment to and the importance of open licensing as well as dedicated support and resources for advice and implementation. The NCU advocated for (and volunteered to lead) the creation of an OER working group to spearhead these initiatives.

Next steps

The NCU will continue to advocate for the use and creation of OER in Australia. Other than continuing with the activities listed above, the NCU with AusGOAL is also:

- Reviewing IP policies in Departments of Education and Schools, and expanding OER policy to encourage Schools and Teachers to licence teaching and learning material under Creative Commons;
- Specialist training in Departments of Education and non government school sector on CC licensing – e-learning, curriculum, communications and IT areas; and
- Amending procurement policies and funding agreements to require that Public funded information is released under the CC-BY licence, inclusive of nested materials.

Case studies

Schools using Creative Commons

OER in Australia is also being adopted at the local, school level. Teachers and students are increasingly using OER to eliminate copyright concerns and bypass the complex copyright rules. OER allows for significantly more engagement with materials than what the Australian educational copyright licences and exceptions allow and enables educators to fully use, adapt and share resources with their school community and the world at large.

For all the above reasons, OER is best suited for the modern day classroom. And due to this, it is being picked up daily by different schools, teachers and students.

As an example of one such school, Carina State School, a primary school in Brisbane, Queensland, recently held its first carnival in 16 years, and it also set a new standard for Australian schools by being an exemplar Creative Commons Community.

The school held an amazing School Carnival Art Gallery in which Creative Commons licences were applied to all of the student works. Creative Commons music was played in the gallery, which avoided any additional costs or copyright concerns, and the school has plans to use Creative Commons licences in future activities.

The school has taken a proactive approach to copyright by using the Creative Commons licences, and has introduced them to their students in a fun, creative and practical way, in the first event of its kind in Australia!

The take home message for the school, students, parents and all that attended the Carnival was that Creative Commons licences work! They're a simple way to overcome copyright concerns and allow for greater dissemination and sharing of artwork, culture and information generally.

To find out how Carina State School created a Creative Commons Community and how your school can too, see the full blog post: http://www.smartcopying.edu.au/open-education/creative-commons/carina-state-school-a-creative-commons-community

Using government policies to leverage implementation of OER

The NCU is a strong advocate for using government policies to leverage implementation of OER. Below we've discussed three recent instances of this.

Australia's Innovation Policy

In Australia copyright law is standing in the way of Australian schools using innovative, digital technology in the classroom. There is an urgent need for reform. Copyright laws designed in the age of the photocopier are not working in the age of the iPad and the 3D printer and are holding back innovation in Australia's schools. The Australian Government recently released a new Innovation Policy, and schools simply cannot meet the Government's innovation goals when outdated and inflexible copyright laws are impeding them. OER policy must be a key component of Australia's innovation policy. To make the Government aware of these issues, the NCU has drafted letters, submissions and taken meetings to communicate to Government that education and innovation policy is focused on increasing Australia's STEM capability, but copyright is operating as a roadblock and open licensing is one part of the solution to these problems.

Open Government Partnership

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- openly supporting and encouraging the implementation of AusGOAL in Commonwealth Departments, ensuring that the body administering any appropriate publicly funded initiative/project/resource is required to openly licence the resources in accordance with the AusGOAL framework, making them widely and freely available; and
- openly supporting and encouraging the use of OER and developing an Australian version of GoOpen.

Education Departments across Australia are leading the way by openly licensing their websites and publications, but there needs to be a clear reaffirmation of the Australian Government's commitment to and the importance of open licensing as well as dedicated support and resources for advice and implementation. The NCU advocated for (and volunteered to lead) the creation of an OER working group to spearhead these initiatives.

Educating schools, government departments and curriculum creators on OER
The NCU is a small secretariat responsible for copyright policy and administration for the Australian school and TAFE sector. One responsibility of the NCU is to educate the school and TAFE sectors regarding their copyright responsibilities. Having this responsibility has allowed the NCU to be in daily contact with the Departments of Education as well as schools and individual teachers, principals and librarians. This puts the NCU in the unique position to have meaningful relationships with a wide range of organisations throughout the education sector in Australia, which leads to having a real effect on daily decision making in schools as well as allowing the NCU to educate from the grassroots level as well as at the Departmental level.

For example, from speaking with curriculum developers we learned that there was a lot of confusion on OER and Creative Commons, generally, and also a widespread belief that it was difficult and time consuming to find OER. Once this came to light, the NCU was able to create a Toolkit directed toward curriculum developers, but also to the education sector as a whole on Creative Commons and also how to quickly and easily find OER. Teachers, Education Departments and also curriculum developers in both the government and private sectors use this Toolkit widely throughout Australia.

More broadly the NCU knows that educating as many people as possible on OER will help with the implementation of Creative Commons and OER in Australia. This has led to the development of numerous different training sessions and workshops throughout the country. This has been very well received, and the NCU is looking to do additional workshops later this year and next year.

The NCU also offers an online course, Copyright 4 Educators that currently has one week dedicated to OER and Creative Commons licences, but is in the process of adding an additional week on OER. This course is run online, twice a year with an intake of approximately 60 learners. The course is unbelievably popular. Enrolments for the course usually fill within 24 hours and have, on average, a wait list of 70 people! The

average retention rate for the seven-week course is 87% over the past three years. The NCU is looking to run an entire course dedicated to OER in the future.

Constant interaction with the education sector in Australia has allowed the NCU to be effective in developing learning opportunities and resources for the sector that quickly become the 'official guide' for all of the Australian education sector and allows the NCU's message on OER and Creative Commons to have a real effect and reach a wide audience.

Key links:

- www.smartcopying.edu.au
- http://www.smartcopying.edu.au/open-education/creative-commons/carina-state-school-a-creative-commons-community
- http://www.esa.edu.au/
- http://www.scootle.edu.au/ec/p/creativeCommons
- www.acara.edu.au
- www.naplan.edu.au
- www.australiancurriculum.edu.au
- https://ogpau.govspace.gov.au/national-action-plan/
- http://www.opengovpartnership.org/
- http://tech.ed.gov/open-education/
- https://p2pu.org/en/courses/3040/copyright-4-educators-aus/

Latin America

Latin America

If the measure for Open Policies in the region is the number of adopted policies or legislations at national or state level, then Latin America cannot be called an open policy territory. However, there are some interesting examples and certainly a good prognosis for the future of openness in this part of the world.

Open Educational Resources

The landscape of textbooks in the region can be illustrated by the work of university libraries that had been trying to address the lack of books by offering photocopying for free. Yet the budget is not enough to meet the demand; for instance, there is a ratio of 50 students per book in the courses with most attendance. In order to compensate for this discrepancy, some students end up getting illegal copies while others do not even have access to them. Just over 40% of students who participated in the survey "*Percepciones, actitudes y prácticas respecto a los libros de texto, digitales y en formatos abiertos por parte de estudiantes de universidades de América Latina*" ['Perceptions, attitudes and practices regarding digital and open textbooks, by students from universities in Latin America'] declared not having access to required textbooks as a problem and they said that the type of material most used is the photocopy of textbook chapters, used by 43% of students.

It is also worth mentioning that in 2013 Uruguayan students rallied against the criminalisation of photocopies and promoted copyright reform that could provide a more flexible understanding of the needs and uses of the education process. The discussion of a new draft law is in mid-2016 was on the table for the Creative Commons Uruguay team.

The debate on the adoption of OER is still at an early stage in Latin America. The exception to this is Brazil, with some small pockets driven by local institutions. Certainly, it is important to note how the debate has grown in Brazil and how strong the OER community is there. The "giant of the south" is definitely enabling an environment for the creation of public policies that fosters the promotion and development of OER. For more information about Brazil's OER community, *see* Recursos Educacionais Abertos no Brasil website on http://www.rea.net.br.

Another milestone for Latin America is the National Strategy for Digital Open Educational Resources (REDA, in Spanish) of Colombia that was adopted in 2012. This strategy is unique in the region and focuses on higher education by establishing the roadmap for creating a national OER system. Defined by a Ministry of Education (MoECo) official in a presentation at the Bogota Workshop (September 2014), REDA is an investment project that requires technical capabilities available in higher education institutions (HEIs); therefore, OER engagement has been paramount to its implementation.

The consolidation of the REDA system in Colombia is materialising through technical committees formed by HEIs engaged in the Ministry-led process. That way, the MoECo ensures the participation of key stakeholders in the process of developing the national system. REDA has established three types of resources: learning objects, virtual courses and education applications. Today there are more than 200 resources with a CC license. However, most of these resources are not open materials (they are tagged with licences that are not considered open). It is hoped that this might change as the system has been designed in such a way that open and public resources may be included.

The Colombian strategy is a good example of how to engage educational institutions and government in a joint project to promote, strengthen and enhance the production, management and use of OER. Although it is too early to assess the process, it is a government commitment that is worth paying attention to.

Apart from these two specific examples of policy discussions there is no country in Latin America with a consolidated OER policy or legislation. What we can see is that the development and promotion of Open Educational Resources appear more among the civil society sector and academic institutions, and not as public policies.

Finally, it is worth mentioning that at K-12 level, all countries have educational websites that have been created through a regional project of the Ministries of Education *Red Latinoamericana de Portales Educativos* (Latin American network of educational portals, RELPE in Spanish). The local websites serve, among other uses, as a digital educational resource repository. However, there seems to be no clarity on what is understood as OER because the licenses used on most of the resources in those repositories prevent them from being considered Open. For instance, in the educational portal "*EducarChile*" there is a statement that promotes free access to

digital educational resources, but the website terms and conditions prohibit the reproduction, copy, distribution, adaptation, and communication of the contents contained on the website. This result is frequent in public "OER" initiatives, therefore it is possible to say that public access (rather than Open Access) to digital resources is becoming the norm in the educational sector of the region, and this is precisely the main challenge.

OER is an area of many unexplored possibilities, but in Latin America it is still in its infancy. In this field there are great opportunities to raise awareness, institutional and organisational development, and, of course, policy making. The task is monumental (see the link to the google doc below for more information).
Key links:

- http://www.eluniversal.com.co/educacion/editores-y-estudiantes-enfrentados-en-uruguay-por-fotocopia-de-libros-139453
- http://www.creativecommons.uy/un-proyecto-por-el-derecho-a-estudiar/
- http://www.rea.net.br
- http://www.colombiaaprende.edu.co/html/home/1592/articles-313597_reda.pdf
- http://186.113.12.159/es/web/rn/inicio.
- https://docs.google.com/document/d/1xUNpaDpa4JqGbfFK6bKkzxnOVsGHZ9MFZHOh4NSBiYM/edit?pref=2&pli=1

Open Access

In a study on access to scientific production in Latin America and the Caribbean, Dominique Babini found that there is minimal presence of open scientific production services in international journals in Latin America and the Caribbean.

The research showed that open access services available to scientific and academic publications in the region include: multidisciplinary portals of scientific journals, SciELO and Redalyc; portal to portals of Latindex journals; a Cybertesis portal; and thematic digital repositories, such as the Agricultural Information System of the Americas (SIDALC, in Spanish), the Network of Virtual Libraries of Latin American Council of Social Sciences (CLACSO, in Spanish), the Virtual Library on Health-Latin American and Caribbean Literature in Sciences Health (BVS-LILACS, in Spanish), or the

Virtual Library of Sustainable Development and Environmental Health-Pan American Network for Environmental Health (BVSDE- REPIDISCA, in Spanish). [1]

The finding of the research was that the content offering Open Access in the region contrasts with the extensive scientific production, "which remains within the circuit of the international commercial distribution of journals, invisible and inaccessible to those who do not subscribe to those services."[2]

It is noteworthy, however, how some Latin American initiatives on Open Access to scientific production are growing and trying to fill the gap[3].

The Scientific Electronic Library Online (ScIELO) is a project that was developed between 1997 and 1998 to give visibility of and universal access to scientific literature produced in developing countries, particularly in Latin America and the Caribbean. The SciELO project stems from the cooperation between the Foundation for Research Support of the State of São Paulo, the Latin American and Caribbean Center on Health Sciences Information, and national and international institutions related to scientific communication and editors. Currently, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Spain, Mexico, Peru, Portugal, South Africa, Uruguay and Venezuela participate in the ScIELO network.

This project is comprised of three components. The first is the SciELO Methodology, which enables the electronic publication of scientific journals, the organisation of bibliographic databases, full texts, text retrieval, preservation of electronic records, and the production of statistical indicators that show impact and the use of scientific literature. The methodology also includes journal evaluation criteria based on international scientific communication standards. The second component is the application of the methodology to operate websites of electronic journal collections, which also facilitate the operation of national sites, as well as thematic sites. Finally, there is partnership development between national and international scientific

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[1] Babini, D. (2011). Acceso abierto a la producción científica de América Latina y el Caribe. Identificación de principales instituciones para estrategias de integración regional. *Revista CTS*. 17(6), pp. 31-56.

[2] Ibid, p. 35.

[3] This conclusion is drawn from the analysis in Politicas Editoriales de Publicaciones Académicas en América Latina (2011), by Alberto Cerda and Juan Carlos Lara.

communication actors, with the aim of disseminating, improving and making the SciELO project sustainable.

Another initiative that has been an important promoter of Open Access in the region is the Network of Scientific Journals from Latin America and the Caribbean, Spain and Portugal (Redalyc, in Spanish). Redalyc is a bibliographic database and a digital library of open access journals. The project began in 2002 with the overall goal of building a scientific information system comprised of leading journals in all areas of knowledge published in and about Latin America. Today, Redalyc is an information system that also evaluates the scientific and editorial quality of the knowledge in Ibero-America. Redalyc offers an online newspaper library that enables reading, downloading and sharing scientific articles for free. It also generates indicators to assess quantitatively and qualitatively the way science is done in Latin America. Thus, it supports efforts undertaken to make scientific findings available for greater discussion among experts and visible to a broader public.

Additionally, the regional initiative of the Federated Network of Institutional Repositories of Scientific Publications (better known as LAReferencia, in Spanish), is a new and important stakeholder "that seeks to share and give visibility to the scientific production of higher education institutions and scientific research in Latin America". LAReferencia has been a great boost to the Open Access movement in Latin American countries (currently in Argentina, Brasil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Mexico, Peru and Venezuela) and especially as the home of the three Open Access laws in the region. Since its conception, the LAReferencia strategy has been focused on creating a framework of technical and organisational arrangements in order to build the Federated Network of Institutional Repositories that is supported by the public sector.

This initiative already has a search engine of scientific articles drawn from nearly a hundred universities in Latin America. This has been possible thanks to the commitments fulfilled by the member countries, which have taken positive steps for integrating the various university and other research centers repositories to LAReferencia search engine. To learn more about LA Rferencia development, see this report.

The main result of the efforts driven by LAReferencia is that it has been successful in promoting some national policies to ensure open access for publicly funded research.

Among the LAReferencia countries that have the requisite legislation in place are Argentina, Mexico and Peru.

The Argentine law (Law No. 26.889 of 3 December 2013) provides that institutions receiving state funding from the National System of Science and Technology must create institutional open digital repositories, in which national scientific-technological production will be deposited. In addition, the law provides for the mandatory publication of primary research data after five years of collection, so that other researchers can use them.

Peru in 2013, passed the Law on National Digital Repository of Science, which establishes the obligation to publish the results of all scientific research funded, in whole or in part, by public sources in the national digital repository, that is interoperable with other regional and global repositories. In 2015, the Peruvian government passed the decree regulating Open Access to narrow the application of the latter.

In 2014, Mexico amended the Law on Science and Technology, General Education Law and the Organic Law of the National Council of Science and Technology to promote Open Access to all knowledge generated with public funding. The legislation also expanded the powers of the *Consejo Nacional de Ciencia y Tecnología* (CONACYT, in Spanish) to develop a national strategy for the democratisation of scientific information and to develop quality criteria and technical standards to establish repositories. Additionally, it creates the foundation for the creation of a National Repository of Open Access to be operated by CONACYT.

Key links:

- https://www.derechosdigitales.org/wp-content/uploads/Informe-Politicas_Editoriales_de_Publicaciones1.pdf
- http://www.SciELO.org/php/level.php?lang=es&component=44&item=1.
- http://www.redalyc.org/info.oa?page=/acerca-de/faqredalyc.html#tab3.
- http://lareferencia.redclara.net/rfr/sites/default/files/LAReferenciaTresPaginas.pdf
- http://lareferencia.redclara.net/rfr/sites/default/files/edicion-especial-referencia.pdf

Open Data

The Open Knowledge Foundation proposes as a definition that, "open data is data that can be freely used, repurposed, and redistributed for anyone". In this sense, it aims the construction of collections through the regeneration of already existing information.

The Open Data movement is linked to an initiative known as Open Government, which attempts to construct transparent governments with accessible information for citizens who can use them to explore their interests. Nonetheless, it does not only limit the public information but, on the contrary, invites businesses and civil society organisations to join the process.

Open Government Data is data that governments, administrations and public entities generated in the performance of its functions. Since they are funded and collected with public money, the information contained in this data is public and should be available to any citizen for any purpose. In addition, this data should be available in an open format that respects technical standards and allow the combination of sets of data from different sources, reuse and dissemination. Therefore, they must generally respect the principles and definitions of open data. For example, information and data published in pdf format can satisfy a form of transparency, but can not be considered open government data. Limitaciones and exceptions to the open data concept refer to data containing information that affects fundamental rights to privacy of personal information or to national security reasons.

According to the publication "Open Data and Intelligent Cities in Latin America: A case study" from the Economic Commision for Latin America and the Caribbean (CEPAL), with regards to Open Government Data in South America, each day there are more and more governments committed to Open Data policies. In 2013, there were 43 countries globally with such commitments including Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Uruguay.

In Latin America and the Caribbean, data has risen as a tool that can propose changes and give necessary responses to the people, especially considering the challenges that public policies face in those countries. In the region, this is becoming more frequent with countries who lead these processes; for example, Mexico and Chile (who both rank in the top 25 of the Open Data Barometer of 2014). Brazil, Argentina and Uruguay were not far behind in positions 28, 31, and 34, respectively.

In this same sense, the Open Data Index of 2015 is a tool that seeks to measure the state of open data of all the governments in the world with specific criteria. They included in their first 20 rankings with Colombia in 4th place, followed by Brazil in 12th, and Mexico in 13th place.

The growth of the concept of open data in the region has gone hand-in-hand with the Open Government Partnership, a multilateral initiative that integrates 66 countries around the world that seek to change the availability of information and its uses for citizens, improve the transparency of decision making processes, and create mechanisms of collaboration between governments, CSOs, businesses, and others. México, Guatemala, El Salvador, Honduras, Costa Rica, Panama, Dominican Republic, Colombia, Perú, Brazil, Paraguay, Chile, Argentina, and Uruguay are part of this coalition.

If this situation demonstrates a good panorama of the region, the challenges they present are many and relate to the implementation of scenarios that control the collective production of the tools, the participation of the citizenry, and the social control from transparent governments.

Key links:

- http://confdatosabiertos.uy/inicio/datos-abiertos/que+son+los+datos+abiertos
- http://repositorio.cepal.org/bitstream/handle/11362/37089/S1420540_es.pdf?sequence=1
- http://idatosabiertos.org/wp-content/uploads/2015/09/1.-Cocreacion-innovacion-y-datos-abiertos-Bonina.pdf
- http://index.okfn.org/place/

GLAM

The penetration of the political will towards more formal parameters of openness within the cultural sector of Latin America is still in the initial stages. In general, cultural politics can identify with a philosophy of openness, but it seems they are inching closer to the idea of free access. It was not possible to identify any specific national political or grand scheme with specific characteristics relating to this movement in the region. There may be public initiatives that agree with the idea of

43

Open, but they do not have a real commitment or identification with the movement, and perhaps that is the reason for them to hold back from any implementation.

There are, however, specific initiatives at public libraries, memory centers, museums, cultural centers, etc., both in the public and private sectors that have adopted Open Policies and started to move towards the idea of being formally identified with this movement.

Two examples of this can be found in Uruguay and Chile.

In Uruguay, motivated by the bicentennial of its independence, a bicentennial law was promulgated that obligated the "formation and implementation of artistic and cultural projects, understanding that the generation of favorable conditions to facilitate the development of publications along with the promotion of debate and historic reflection in IberoAmerica." In the framework of this law, there appears an initiative called "Photos of the Bicentennial Independence for Everyone", a gallery on flickr with a CC license.

In Chile, the Investigations of Chilean Memory project, from the National Chilean Library (DIBAM) is licensed under the Creative Commons Attribution 3.0.

Case Studies

Open Access: Argentina Public Policy

In November 2013, the Argentine scientific institutions successfully achieved something only three countries have been able to do: the approval of a national law for Open Access. Silvia Nakano, National Director of Physical Resources in Science and Technology of the Ministry of Science, Technology and Productive Innovation, is one of the women who has led the adoption of Open Access policies in Argentina, and the region. It is defined as an optimal moment for political will to be secured and the appropriate institutions to advance within a law project before Congress that will finally be approved in a unanimous manner without major opposition in the debates. An ideal scenario, something we rarely find in the world in favor of open politics:

"We could explain it to the legislators that they treat open access and why we defend this devolution to a society that paid for the scientific production and another manner pays to access it as well. All of this is an untested process for me because it was the first time it went to Congress."

Almost three years after the approval of the law, Silvia believes that the impacts can be seen in the backbone of the law that now regards Open Access political institutions as scientific and educational. Argentine institutions are now required to openly publish all aspects of its research, including partially completed research, that has received whole or partial funding from the State. Furthermore, when it comes to the attitudes they promote with regards to the use of Open Access, it presents an important challenge to count a normative text that, although it is in an era of regulation, is without doubt a pioneer in the region and its successes and errors will serve as a guide for other countries in the region.

Today the Ministry of Science, Technology and Productive Innovation is focused on the approval of "Law 26899: Creation of Institutional Digital Repositories of Open Access, Proprietary or Shared" relating to the Open Data initiatives proposed by the new Argentine Government. They hope this will bring Open Access closer to designing a true ecosystem for Open Science. As Silvia says, "We dream big: to have primary data open and accessible in interoperable repositories, and that everyone can utilize resources and advance their own research".

When speaking with Silvia it becomes apparent that creating a public policy for Open Access has been a learning experience for all stakeholders; the politicians, government, and the institutions of science and technology. Specific lessons have covered two principal aspects: "First, it brings to mind their own production, which is what they produce at home; later, the successful quest to create a registry and institutional memory for the research done by scientific institutions (as much in terms of thesis as resulting data) requires work to be done that never ends. As we move forward, we still have a lot of work to do, but we will never get bored in doing it".

Open Education: Universidad de la República (Uruguay)

"We can affirm that in Uruguay, the University of the Republic has initiated the path towards becoming an Open University," says Patricia Diaz, lawyer, professor and judicial leader of Creative Commons in this South American country. The work of this public university is seen as the most important in the country. The University of the

Republic covers 90% of the demand for tertiary education. Its promotion and adaptation of policies around Open Educational resources demonstrates how academia can take a more active role in these open policy discussions in our region.

For law, the University of the Republic is a heavyweight player in the Uruguayan political scene. In the words of Patricia, "this organic law requires the university to influence the policy decisions of the country. As a political actor, the university can approach parliament, for example, and for this reason they have an activist profile." In this context, their commitment to Open Education specifically covers three resolutions that push open policies in the University. For example, from the year 2013, open software and all open formats have been proprietary. Further, scientific production circulates via open access and there has been support for the proposed virtual repositories of learning at the University in order to make resources better used and more open".

How did they achieve this? For Patricia, the work of the Virtual Learning Environments programme (ProEVA) continues to be one of the principal drivers that propels the philosophy of openness. Institutions support the university's open initiatives that function within the University. These are the institutional repository, the multimedia area, the open courses, and open resource. "They are a small team, lead by Virginia Rodes, but they have implemented the idea of what Open Education is in Uruguay." It is interesting to note that to develop these open proposals they have relied on the support of other actors, such as Open Software or the Uruguayan Chapter of Creative Commons, to facilitate these alternative ideas, questions, and knowledge and enrich the discussion outside of the institutional environment.

In 2015, the University began the REA Nucleus, an interdisciplinary workgroup that includes academics, civil society representatives, and the state with the objective of opening up research and the formation of the wheel of Open Educational Resources in the country as they promote the policies that make them stronger. *For the right to study* is one of their projects; a campaign that supports the proposed law regarding the Federation of University Students (FEUU). This is the response to the break-ins that occurred by the police in 2013 at the photocopy shop near to the Faculty of Law of the University of the Republic. This incident demonstrated the problem of access to study materials and the need to strengthen copyright exceptions for the use of materials for research purposes and, of course, the importance of promoting Open Educational Resources as elements in the guaranteed access to the knowledge in the digital era.

Open Data: Colombia

At the intersection between open data and open government, we have seen a new element emerge for governments that are constructing themselves in the digital era: the open government data. This can be seen in a box below.

In order to analyze and evaluate these types of initiatives, we find different models, one of those is the process for the web creator, Tim Berners-Lee in the following manner.

★	Available on the web (whatever format) but with an open licence, to be Open Data
★★	Available as machine-readable structured data (e.g. excel instead of image scan of a table)
★★★	as (2) plus non-proprietary format (e.g. CSV instead of excel)
★★ ★★	All the above plus, Use open standards from W3C (RDF and SPARQL) to identify things, so that people can point at your stuff
★★★ ★★	All the above, plus: Link your data to other people's data to provide context

Colombia is not the exception. The Latin American country forms part of the global initiative for Open Government where their goals are to see the construction of a framework that favors transparency, the archival of stories, and the fight against corruption. Since 2011, the country comes working on the development and implementation of tools and political technologies such as electronic administration, the best offering of services, and the culture and application of ICT in clear language.

As a part of this initiative and in the strategy framework for Online Government, they have created a web portal www.datos.gov.co, a website that "permits you to find, in a unified manner, all the data published by public entities in Colombia in an open format with the goal of these can be used by whomever in order to develop applications or valuable services aggregated, to do analysis and investigation, exercise control tasks, and whatever type of commercial or noncommercial activity." According to the portal, the open data is "everything from unprocessed primary data in standard formats to interoperable ones that facilitate their access and permit their repurposing under the

custody of public entities and can be obtained and offered without reserve in an open form without restrictions, with the goal that third-parties might reuse them and create services derived from themselves."

This strategy, led by the Ministry of Information and Communication Technologies - MinTIC that in 2013 had 269 entities with 399 data sets, that have significant advances. Currently the catalog has 2009 data sets of more than 500 public entities at the local and national level; furthermore, these open data sets have developed close to 110 applications in the categories of: Agriculture and Rural Development, Environment, Commerce, Communications, Public Hiring, Culture, Democracy, Education, Finances, Public Function, History, General Information, Justice, Legislation, Transportation, Mobility, Social Prosperity, Health, ICT, Employment, Tourism, and Housing that seek to strengthen the access to the information that forms part of the citizens impulse to develop ICT initiatives for collective benefit.

If we use the Berners-Lee evaluation methodology from the table above, the model of open data in the Colombian Government would be three of five stars. This is a good indicator for the country. It results that there had been important efforts at the outset for data sets for the creation of new developments. In its creation, this initiative led the national government to recognize as successful, Colombia appears as one of the leading countries in Latin America in accordance with the Global Data Index published by the Open Knowledge Foundation which places Colombia 12th overall globally.

Although there are still pending cases to resolve, initiatives like Self-Care from the Ministry of Health and Social Protection, AGROCLIMA - Ministry of Agriculture and the rural development for agronet; they realize the advances in the creation of tools that apart from open data seek to satisfy different needs that different communities may have in their daily life.

Keeping in mind the Tim Berners-Lee model as a means to improve so that Colombia can reach five stars, the country must first emphasize the importance of data with an open license. The licensing policies is precisely what needs to remain explicit for the use of this data, already what has reached public domain is not a policy for the documents produced for the government. On the other hand, a star is something they should obtain for the linked data that will permit a major improvement of this and the development of more applications.

Europe

Europe

Open policies in Europe

In the case of Europe, there are not just national developments to consider, but policies developed at the level of the European Union (EU). The European Union covers 28 member states – the majority of European countries. Out of the four areas of interest for our study, there are significant developments, at European level in *Open Data*, *Open Access* and *Open Heritage* policies. Furthermore, some of the European states (or specific institutions based within them) are among the leaders in the development of open policies.

Open Data

According to the 2014 edition of the Open Data Barometer Global Report, the United Kingdom is the global leader in Open Data policies, being given a perfect score for readiness, implementation and impact. There are four more European countries in the top 10 of the index: France, Denmark, Netherlands and Sweden. The European Open Data Maturity Assessment 2015 that was conducted among EU member states shows that 71% of these five countries have an Open Data Policy. 57% of the countries have dedicated policies. In the rest the policies are integrated in general digital policies. Interestingly, in most of the once without specific data policies, a higher number of countries have an Open Data portal. This shows that, in the case of open data, practical implementation is more widespread than policies itself.

Proper licensing (or lack thereof) remains an issue, and there seems to be a lack of clear standards in this regard. According to the Assessment, 11% of the data is not free of charge, 11 countries have policies that officially support a pricing mechanism for data, and only 66% have a standard license policy. There also seems to be a lack of standards regarding placing and marking data in the public domain – high levels of open licensing suggests that some of the data might be improperly licensed.

Building on the experiences of the United Kingdom and other leading member states, the European Commission has introduced its own Open Data policy, starting with a

2011 Commission Decision on the reuse of its documents. The European Union's own data have been made available, since 2011, on the European Open Data Portal.

The Commission is also supporting the development of a legal framework for open data reuse within member states. The framework is through the 2013 Directive on the re-use of public sector information, which establishes a common legal framework for not just open data, but broadly understood public documents. In 2014, the European Commission published "Guidelines on recommended standard licences, datasets and charging for the re-use of documents". Although the document is non-binding for member states, it provides detailed guidance that includes the use of standardised notices (such as Public Domain mark) for non-copyrighted resources and Creative Commons free licenses or the Creative Commons Zero dedication in the case of copyrighted works. Since the guidelines are related to a very broad definition of documents included in European Public Sector Information regulation, they potentially apply to every type of public or publicly-funded resource.

All in all, open data policies are relatively well developed in Europe, together with its associated infrastructure. Challenges that remain concern the extent of data made available, and its quality. Experts also point to the lack of political will as a barrier to further implementing open data policies.

Key links:

- http://webfoundation.org/about/research/open-data-barometer-3rd-edition/
- http://www.europeandataportal.eu/sites/default/files/edp_landscaping_insight _report_n1_-_final.pdf
- http://blogs.worldbank.org/opendata/european-countries-making-clear-progress-open-data

Open Access

In the European Union, open policies in the field of science and research where the earliest to be developed among all open policies. In 2008, an Open Access pilot program was initiated within the 7th Framework Program for Research and Technological Development, a major source of research funding in Europe with a budget of over EUR 50 billion. The pilot applied to half of the 7th Framework Program's themes (approximately 20% of the budget). It required that researchers who had obtained research grants should deposit either the publication or the final manuscript

in an Open Access repository. An embargo period of 6 months (12 months for social sciences and humanities) was allowed. The pilot made use of a significantly developed repository infrastructure and stipulated the use of the researcher's institutional or thematic repository. A European-level Orphan Repository has been created to host content when other repositories are not available.

In 2014, based on this pilot, an Open Access requirement was introduced in the Horizon 2020, the 8th Framework Program with an estimated budget of EUR 80 billion for years 2014-2020.

All beneficiaries of the program are required to ensure Open Access to publications that have been funded in the program, in a scheme modeled on the FP7 Pilot. Retention of rights and use of CC BY license is encouraged, but not required. The Horizon 2020 OA scheme extends the policy to data through the Open Research Data Pilot, established in several core areas of the program. Within the pilot, beneficiaries are required to deposit all data and metadata needed to validate the results presented in publications, in an open research data repository.

The Open Access policy and Open Research Data pilot establish an important best practice case and point of reference for open science efforts in Europe. But the practical reach of this policy depends on the number of research grants awarded to a given member state. The impact of the policy will affect mainly states with high capacity to conduct research.

In the meantime, there have also been efforts to coordinate the introduction of national Open Access policies. In 2012, the Commission published "Recommendation on access to, and the preservation of, scientific information", which requires states to introduce open access policies to all publicly funded research. The recommendation also applies to open research data. A study of the ROARMAP registry, conducted within the scope of the Pasteur4OA project, shows that in Europe there are 356 research institution policies and 65 funders policies present. Among the funders, there are several national policies adopted in Europe, usually by national research funding bodies. Such policies exist in France, Austria, Denmark, Estonia, Belgium, Hungary, Lithuania, Norway, Spain and Switzerland. As the Pasteur4OA study notes, policy alignment remains a crucial issue. For example, 65% of funder policies and 38% of institutional policies mandate that an article is deposited in a way that meets the OA standard. The Horizon 2020 policy is seen as a standard and point of reference in this regard.

In May 2016, the development of Open Access policies was recommended by the Council of the European Union. In the meantime, the policy focus in Europe shifted from Open Access to a broader concept of Open Science, which includes in particular open research data. Representatives of member governments call both on the Commission and the member states to develop policies that offer compliance with Open Access provisions under Horizon 2020. Such strong commitment from national governments will hopefully translate into further development of Open Science policies in Europe.

Key links:

- https://www.openaire.eu/open-access-in-fp7-seventh-research-framework-programme
- https://ec.europa.eu/research/science-society/document_library/pdf_06/open-access-pilot_en.pdf
- http://roarmap.eprints.org/
- www.pasteur4oa.eu/resources/198#.VysZuvl97cs

Open Education

Already in 2008, the Council of Europe advocated using OER in its recommendations "*Realising the full potential of e-learning for education and training*". Open resources were seen as means of counteracting digital exclusion and equalising educational opportunities. The development of Open Education policies by the European Commission is limited by the fact that the European Union has very limited competence and only a supportive role with regard to education, which remains a national matter. Nevertheless, the concept of Open Education appears in key European documents, starting with the strategy *Europe 2020* from 2010.

In the communication *Rethinking Education* from 2012 the issue of open educational resources is presented as an important aspect of using telecommunication technologies in education and developing new forms of learning. The communication urged member states to increase the scale of access to, and the use of, OER supported by adequate quality assurance standards. This communication was followed in 2013 with a new educational strategy, presented in the communication *Opening up Education*. This strategy recognises open educational resources as one of the pillars of education. The European Commission recommends creating open resources and

preparing public institutions for new models of creating educational resources. Member states are advised to support the openness of educational resources that are financed from public funds.

An open licensing model for educational resources has been implemented in the Erasmus+, a framework program for education, training youth and sport with a budget of EUR 14.7 billion. Unfortunately, the licensing standard is very weak, and is without a clear standard of open licensing. After two years of operation, there are no clear visible effects of this policy; in particular, because there is no related repository that would aggregate and make available OERs funded in this program.

None of the European states has a general Open Education policy that, for example, enforces open licensing and the availability of publicly funded educational resources. At the same time, in several countries there are important large-scale, public Open Education efforts. These include national OER repositories in France and Norway, a national open textbooks platform in Poland, OER-related initiatives within the French digital higher education program Sup Numerique and the Slovenian Opening Up Education initiative. Furthermore, in many other EU member states there are ongoing policy debates on OER or smaller Open Education initiatives.

The Open Education space is distinguished in Europe from open data and open access efforts by a lack of policy developments at EU level. This is due to the Union's limited mandate in the sphere of education. As a result, a level of coordination and standardisation that is visible in these other spheres is lacking in education. In higher education, Open Education policy efforts benefit to some extent from Open Access developments and the fact that there is an EU-level research and innovation strategy.

Open Heritage or Open GLAM

In Europe, Open Heritage policies are the least developed of the four policy areas we are analyzing. Cultural heritage institutions (libraries, museums, archives and galleries) are late-comers to the debate on open availability of resources. Similarly, EU policies in this sphere have been weak, with the sole exception of a cultural data sharing policy implemented by Europeana, the EU digital platform for cultural heritage.

It is worth noting that in the case of heritage, there is lesser importance of licensing solutions, due to the fact that heritage is either in the public domain, or institutions do

not have the rights to the in-copyright works, the copies of which they own. Therefore, proper implementation of copyright law and its reform are more important.

In 2011, the European Commission published "Recommendations on the digitisation and online accessibility of cultural material and digital preservation". The recommendations position the issue of openness of heritage in the broader context of the digitization of heritage resources. Yet it includes only general language on ensuring that digitized public domain content retains its public domain status. With regard to Europeana, the document recommends openness of heritage metadata. As opposed to the four other areas studied in this report, legislative work is acknowledged as an important factor for heritage policy – the document mentions in particular orphan works regulation as a way of ensuring greater access and reuse. In 2012, the *Directive on certain permitted uses of orphan works* was enacted, yet the limited scope of the regulation does not make it an effective tool for ensuring availability of orphan works.

Open Heritage policies are also related to European regulation on the re-use of public sector information (which is significant for open data policies as well). Since 2006, the EC considers Europe's cultural heritage as a potential source of economic added value, if it is properly re-used [recommendation from 28 August 2006]. This led the Commission to include, in its 2013 revision of the Directive on Re-use of public sector information, rules on making heritage available for re-use by libraries, museums and archives. While these regulations do not yet provide a full open standard (institutions are allowed to decline requests to make content available for re-use, and fees can be charged), they are an important element for ensuring openness of heritage. It also remains to be seen how this regulation is brought into law and then implemented in member states.

In 2011, an important position document was published by the Comité des Sages, an advisory group to the European Commission. In a document titled "The New Renaissance", wide access to, and use of, digitized public domain materials is the first recommendation. Other recommendations concern openness of heritage metadata, and dealing with in-copyright works through orphan works regulation.

Yet there are few examples of policies that put in place the broad rules recommended in these documents. The Europeana Data Exchange Agreement is the sole exception. The Europeana Data Exchange Agreement is a Europe-wide agreement between Europeana and heritage institutions that are its data providers. According to the

agreement, all metadata submitted to Europeana will be published openly under CC0 Public Domain Dedication. Additionally, all objects will be published with rights statements that clearly describe their copyright status.

Other than that, open heritage policies are implemented at institutional level. They are not standardized and there have been few attempts to even map them. The most often given example is that of the Rijksmuseum's open collections initiative – although the open practice of sharing public domain artworks is not supported by any formal policy. Several institutions, such as the National Gallery of Denmark (SMK) and the British Library share openly public domain collections and adhere to standards concerning licensing, preservation of the public domain, or open metadata; which can be seen as forms of an open policy. Yet in comparison with the other fields of study in this report, policies for open cultural heritage are not explicitly expressed. A rare example of such policy is the Declaration of Open Policy of the Polish History Museum (highlighted as a case study earlier).

Key links:

- http://pro.europeana.eu/page/the-data-exchange-agreement
- http://siarchives.si.edu/sites/default/files/pdfs/2016_03_10_OpenCollections_Public.pdf
- http://muzhp.pl/pl/c/1526/deklaracja-polityki-otwartoci-mhp

Case Studies

Open Education Policy: City of Leicester, United Kingdom

In 2013, the City of Leicester in the United Kingdom initiated the "Building Schools for the Future" program. This was an effort to modernise information and communication technology infrastructure in schools. Although it's main aim was improving physical infrastructure, this was not the project's only concern. The DigiLit Leicester initiative was launched to ensure that school staff and learners had the necessary competences to make best use of the new technology. A Digital Literacy Framework was developed. The framework formed the basis for a survey of school staff on their digital skills.

The survey, conducted in 2013 and 2014, helped identify skill gaps among teachers. Creation and sharing of educational resources was among one of the key deficiencies

identified in the study. As a result, in 2015, a city-level policy was introduced to provide guidance and support for the sharing of resources by teachers. Leicester City Council gave formal permission to 84 schools across the city to release resources created by their staff under an open license (In the UK, the copyright for works created in the line of employment are automatically assigned to the employer). The Creative Commons Attribution was chosen as the standard license within this policy.

Furthermore, the policy has been supplemented with a range of guidance documents for teachers, explaining what Open Educational Resources are and how they can be created. Based on the model policies, the city council continues to encourage other schools in the district to review their licensing policies and join the initiative.

According to Josie Fraser, lead of the project, the policy "supports Leicester schools to promote what they are achieving, and also to connect to, and collaborate with, other schools, and to make educational resources accessible to learners everywhere". The Leicester City OER policy is unique in addressing the issue at the level of individual schools, at which a formal policy can be combined with guidance and training. This policy is also important for the way it ties OER with the issue of digital literacy, and even more broadly use of ICT in schools".

Key links:

- http://education.okfn.org/supporting-schools-to-use-oers/
- http://schools.leicester.gov.uk/services/planning-and-property/building-schools-for-the-future-bsf/open-education-for-schools/
- http://openscot.net/oer/leicester-city-council-and-oer-for-schools/

Open Policy: Slovakia's Open Government Partnership

Open Government Partnership (OGP) is an international platform of 69 countries that supports the development of national open government initiatives. Its focus is on accountability, transparency and responsiveness to citizens. The action plans developed on a bi-yearly basis by each of the participating countries traditionally include commitments that concern access to information and the reuse of public sector information. Open data policies and commitments (including the creation of repositories and the release of datasets) have been one of the key goals of OGP members from the start.

In 2014, civil society actors began working on using the OGP as a platform to support the development of other types of open policies. Slovakia, alongside the United States, was the first country to include in it's OGP national action plan for 2015-2016 commitments related to Open Education and Open Access. In both cases, the authors of the Action Plan argue that educational or scientific resources can be understood in relation to the Open Data concept, which builds the idea of added value through reuse: *"Just as with open data, it is desirable to remove as many limitations as possible for **open educational resources**"*.

Within its OGP national action plan for 2015-6, the Slovak government committed to mapping existing public educational resources and identifying those that can be released as OER; the mapping and analysis of existing repositories for the purpose of using them to publish OER; the analysis of the procurement process for educational resources and identifying possible barriers to making them OER; and proposing a new procurement process that will enable textbooks and other learning resources to be released as OER. This was all with the ultimate aim of running pilot of the new procurement scheme.

Furthermore, they have undertaken similar commitments related to Open Access. These include:

- The mapping and analysis of existing repositories for the purpose of using them to publish Open Access publications;
- The identification of possible barriers towards full Open Access implementation;
- The analysis of a possible requirement of making publicly-funded scientific publications available to the public in an open and free manner; and
- The proposal of a mechanism for voluntary publication of data related to scientific publications, such as Open Data.

These commitments are accompanied by measures related to promotion and international cooperation on OER and OA. The Slovak OGP strategy is interesting as an attempt to bridge barriers across sectors and to build an open strategy that concerns public data, educational and scientific resources (the same argument can be made about the OGP national action plan of the USA). OGP itself is significant as a platform that provides ways of standardizing open policy development at a global scale.

Key links:

- https://openpolicynetwork.org/exciting-updates-on-open-government-and-open-education/

Open Heritage Policy: The Polish History Museum

Individual institutions have been the drivers for change in the cultural heritage sector; more so than in education or research. Institutional policies are important due to relative autonomy of museums or galleries. One example of such a policy is the "Declaration of Open Policy", adopted in 2015 by the Polish History Museum. The Polish History Museum is a national heritage institution responsible for preserving, documenting and presenting the national history of Polish. The policy has been developed by the museum with the cooperation of Creative Commons Poland and the institutional lead, Centrum Cyfrowe.

In the Declaration, the museum commits to making available, as openly and broadly as possible, both heritage resources and the effects of its own work. Furthermore, it commits to supporting re-use of resources, such as the documentation of its exhibitions, promotional materials, research results and scientific publication, educational resources and published books. Protection of the Public Domain and the use of Creative Commons licensing are both explicitly stated.

In its declaration, the museum adopted the following detailed rules:

- Object metadata will be made available in the Public Domain through the Creative Commons Zero declaration;
- Digital copies of works no longer protected by copyright will be properly marked as belonging to the Public Domain, through the use of the Public Domain Mark;
- Resources will be published using open formats that are machine readable; and
- Educational and scientific resources produced by the Museum will be made available with the use of Creative Commons licenses, with a preference for the use of one of the free licenses.

For the Museum, open policy fits within its broader strategy and mission to promote and make Polish history accessible. Greater availability and re-use of resources will in particular extend the museum's reach to new groups of citizens, lowering barriers that are, for example, related to geographical distance or disability. After adopting the

59

strategy, the museum has became actively involved in a Polish network of open cultural institutions. Most importantly, it is mentoring other institutions to adopt similar open policies.

In the same year, the National Institute for Museology and Collection Protection (NIMOZ) – the Polish Center for Excellence for Digitisation at the Museum – adopted a report on legal aspects of digitisation. Recommendations, prepared by a group of legal experts working with the institute, follow the lines of the MHP policy with regard to protecting the Public Domain, making metadata openly available, and encouraging the free licensing of copyrighted works that the museum owns.

Key links:

- http://creativecommons.pl/2015/07/muzeum-historii-polski-i-pierwsza-taka-polityka-otwartosci/
- http://muzhp.pl/pl/c/1526/deklaracja-polityki-otwartoci-mhp

North America

North America

For the purposes of this report, the North American region encompasses the United States and Canada. Both of these countries have been leaders in open policy across various sectors, and have initiatives at both the national and state or provincial level. As economically developed countries, the U.S. and Canada both invest significant amounts of public funding in research, education and workforce development programs that generate extensive amounts of data, publications, software, and other resources. Open policies have a relatively strong presence in both countries, both at the national and subnational level.

United States of America

The value of public access to publicly funded works in the U.S. has a longstanding historical precedent in copyright law, under which virtually all works created by the federal government are in the U.S. public domain. As a result, publicly funded resources created by federal employees have been legally available to the public for decades. The limiting factor has been a means of distribution, which is why the earliest open policies in the U.S. focus not on open licensing, but on making government resources digital, discoverable and usable by the public. Much of this happened organically when U.S. government began to switch from print to digital online distribution of public records in the 1990's, and has expanded to other valuable resources not originally intended for direct use by the public, such as raw weather data, photographs from space, and Global Positioning System (GPS) data.

Open policy began to accelerate in 2009 when President Barack Obama took office. The Obama Administration continued to open up government information, including a landmark 2013 policy directive requiring all newly-created federal datasets to be open and machine readable. More than 180,000 government datasets are now published on Data.gov. The Obama Administration has also looked beyond government-created

information to resources arising from work that the government funds through grants and contracts.

In 2013 the White House issued a directive to agencies with large research budgets to ensure that publications reporting the results of research grants are available to the public within 12 months, building on an successful policy at the National Institutes of Health enacted in 2008. While not strictly an open policy (as it does not require open licensing), it is a significant step in that direction.

In 2015, the U.S. Department of Labor became the first agency to adopt a blanket open licensing policy for copyrightable works arising from competitive grants, and the U.S. Department of Education also began the process of adopting a similar policy. Both agencies previously implemented open licensing policies at the grant program level. Looking ahead to 2016 and beyond, the U.S. has made explicit commitments to open policy in its 2016-2017 Open Government National Action Plan, relating to open data, the open licensing of educational resources, opening up government-created software code, and expanding public access to research results. This plan is significant in light of the upcoming 2016 presidential election, since it will help raise the visibility of open policy as an issue for the next administration.

There have also been significant advances in the U.S. at the sub-national level. At least six state governments have funded programs to expand the use of open educational resources—California, Connecticut, North Dakota, Oregon, Texas, and Washington— and numerous more have adopted policies encouraging this approach.

A handful of public institutions of higher education have also begun adopting policies, such as the California Community College Chancellor's Office policy requiring open licensing for all resources arising from grants and contracts. It has also become increasingly common for large philanthropic foundations — which are subsidised by the public through tax exemptions — to adopt open policies. One notable example is the Bill & Melinda Gates Foundation, which (starting in 2017) will require that all research publications arising from foundation grants be openly licensed and freely available immediately, along with the underlying data. Other foundations, including the Ford Foundation and the William & Flora Hewlett Foundation, require open licensing on all resources arising from grants.

Key links:

- https://www.whitehouse.gov/blog/2013/02/22/expanding-public-access-results-federally-funded-research
- http://sparcopen.org/news/2016/dol-open-licensing-policy/
- https://www.federalregister.gov/articles/2015/11/30/2015-30279/open-licensing-requirement-for-direct-grant-programs
- https://www.whitehouse.gov/sites/default/files/microsites/ostp/final_us_open_government_national_action_plan_3_0.pdf
- http://www.californiacommunitycolleges.cccco.edu/Portals/0/DocDownloads/PressReleases/SEP2013/PRESS_RELEASE_CreativeCommonsBY_090913_FINAL.pdf
- http://www.gatesfoundation.org/How-We-Work/General-Information/Open-Access-Policy
- https://www.fordfoundation.org/the-latest/news/ford-foundation-expands-creative-commons-licensing-for-all-grant-funded-projects/
- http://www.hewlett.org/about-us/values-policies/commitment-open-licensing
- http://www.iyfnet.org/blog/fixing-skills-gap-aerospace-industry-mexico

Canada

Canada has made a number of notable advancements in open policy, particularly in the areas of Open Data and Open Education. Canada launched its first federal Open Data portal in 2011, which now encompasses more than 100,000 datasets, including an extensive collection of geodata. Canada codified an Open Data policy in its 2014 Directive on Open Government, which required open and machine readable as the default for all government datasets and information. Canada has developed and implemented a special license for government data and information called the Open Government License - Canada, which is considered compliant with the Open Definition. The country has further committed to expand its Open Data program in its 2014-2016 Open Government plan. There has also been significant progress on Open Data at the sub-national level, with more than half of Canada's provinces and territories running Open Data initiatives that encompass more than 250,000 datasets.

Canada has also taken steps toward opening up the results of research. In 2015, three large federal agencies — Canadian Institutes of Health Research (CIHR), the Natural

Sciences and Engineering Research Council of Canada (NSERC) and the Social Sciences and Humanities Research Council of Canada (SSHRC) — adopted a coordinated policy ensuring public access to research publications arising from their grants within 12 months. The policy builds CIHR's successful public access policy, which was enacted in 2008. Like the 2013 U.S. directive, this is not a true open policy but takes an important step in that direction.

Canada is widely recognised for its leadership of Open Education at the provincial level. In 2012, the government of British Columbia launched an initiative to create openly licensed textbooks for popular courses at the province's public post-secondary institutions. The goal of the initiative was to address the cost of textbooks, which added significantly to the cost of higher education, by supporting the creation and adoption of open alternatives that would be free to students. To date the program has created more than [150 open textbooks, impacted nearly 15,000 students](), and saved as much as CAD 1.8 million. British Columbia has inspired similar programs in other provinces, and in 2014 signed a [MOU with Saskatchewan and Alberta]() outlining a framework for inter-province collaboration on open textbooks.

Key links:

- http://open.canada.ca/data/en/dataset
- https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28108
- http://opendefinition.org/licenses/
- http://open.canada.ca/en/content/canadas-action-plan-open-government-2014-16
- http://open.canada.ca/en/blog/open-data-across-canada-snapshot
- https://open.bccampus.ca/2016/06/01/the-b-c-open-textbook-project-celebrates-another-milestone-151-open-textbooks/
- http://www.gov.sk.ca/adx/aspx/adxGetMedia.aspx?mediaId=f3d342c4-ab61-44a4-9f96-71ceb7810a5d&PN=Shared

Case Studies

TAACCCT (USA)

One of the most prominent examples of open policy is the United States' $2 billion TAACCCT program. Short for the Trade Adjustment Assistance Community College

and Career Training program, TAACCCT was a large federal grant fund administered by the Department of Labor to improve workforce training opportunities for workers impacted by foreign trade.

TAACCCT was authorised by Congress in 2009 during the financial crisis, when many Americans who lost their jobs returned to school in the hopes of gaining employable skills. The goal of the program was to help "upskill the workforce" nationwide by retraining workers in skills for high-demand jobs, which made it critically important to think about how to expand the benefits to the whole country.

When the Department of Labor launched the program in 2011, they turned to open licensing to ensure these one-time investments could have an impact at scale. As a condition of receiving TAACCCT funding, grantees were required to release all workforce training resources (from textbooks to curricula to videos to software) and other copyrightable works under a Creative Commons Attribution (CC BY) license, and freely distribute the materials via a repository. Over four years, the program distributed grants to community colleges and other two-year degree granting institutions across all 50 states, spanning dozens of industries and hundreds of careers.

The first two rounds of grantees have posted their materials in the Skills Commons repository, and there have been more than 100,000 downloads of the materials to date. The impact of the open licensing policy is already visible, as other colleges, employers and members of the public are beginning to use and reuse TAACCCT-funded resources

The impact isn't limited by U.S. borders. The Air Washington consortium, one of the grantees in Washington state, developed a program to train aeronautic technicians. A career training institution in Chihuahua, Mexico then used the openly licensed resources as the basis of a curriculum for their local aerospace industry's needs. Rather than starting from scratch, they translated the TAACCCT resources into Spanish and made adaptations. And in turn the Mexican institution further shared the curriculum with other schools.

Building on the success of TAACCCT's open licensing requirement, in 2015 the Department of Labor expanded the policy agency-wide for all competitive grant programs.

Key links:

- https://www.skillscommons.org/most-popular/item

British Columbia Open Textbooks (Canada)

In 2012, the rising cost of textbooks on top of other higher education expenses had become a major issue for students. Textbooks for introductory subjects often topped CAD $200 a piece, and frequent revisions made it difficult to buy and resell used books. Expensive textbooks could act as a barrier to accessing education, and the provincial government of British Columbia (BC) decided to take action by launching the BC Open Textbook Project.

The BC Open Textbook Project was charged with creating a collection of openly-licensed textbooks for the top 40 highest-enrolled subject areas in the province. Led by BCCampus, a publicly-funded organisation that assists higher education institutions with technology, the project aimed to increase access to education by expanding the use of open textbooks, which are free to students. The rationale was that focusing in high enrollment courses could benefit the greatest number of students, and provide the faculty with an alternative to the expensive textbooks that dominated the market. The power of open textbooks is that once they are created, they can be used, tailored, updated, and shared forever, for free.

Within two years, their collection of open textbooks contained 70 titles and the project had saved students more than CAD $350,000. In 2014, the provincial government announced that the project would expand to an additional 30 textbooks focused on key job skills. Around the same time, British Columbia signed a memorandum of understanding with two other provinces, Alberta and Saskatchewan, expressing intent to collaborate on developing open textbooks.
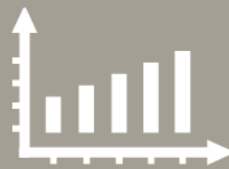
As of 2016, the BC Open Textbook Project has saved students as much as CAD $1.8 million and has more than 150 open textbooks in their collection. Illustrating the true value of open licensing, BCCampus created only 60 of those books, the rest being adapted or reused from other contexts. The open textbooks have been adopted in more than 500 courses, impacting more than 14,000 students. And, according to the project website, they show no signs of stopping.

67

Open policy played a critical role in this project's success, since open licensing ensures that the textbooks would be freely available for students, faculty and members of the public to use. This not only achieves the project's stated goals for BC students, but also provides the same benefits to students in other provinces, and around the world.

Key links:

- https://open.bccampus.ca/about-2/
- https://news.gov.bc.ca/stories/free-online-textbooks-developed-for-skills-training
- http://www.gov.sk.ca/adx/aspx/adxGetMedia.aspx?mediaId=f3d342c4-ab61-44a4-9f96-71ceb7810a5d&PN=Shared

Open Policy Index

Open Policy Index

The scope of the survey

The objective of our survey is to provide an overview of how different countries of the world are engaging in developing and implementing open policies. We are interested in mapping policy developments related to varied spheres where openness is promoted, namely: open education, open data, open source software, open heritage and cultural content, open access and open science. We define these spheres in following manner:

Open Education (OE): policies concerning Open Educational Resources (OER) and other forms of openness of education

Open Science (OS): policies concerning Open Access (OA) to research articles, open research data, and other forms of openness of scientific and research materials

Open Data (OD): policies concerning data owned by governments, including all forms of public sector information

Open Heritage (OH): policies concerning heritage collections, cultural works and cultural metadata

There have been some previous efforts to survey developments in specific domains, such as the repository of OER policies created by Creative Commons or the Open Data

Index[4], which served as an inspiration for this survey. Yet, a regards other areas, no efforts to map these policies have been made to date. Also, we are not aware of the existence of any previous examples of studies examining various types of open policies at the same time. This report aims at addressing this gap. We hope that it will lay the foundations for a complex, multidimensional analysis of the development of open policies around the world.

Our survey is based on a universal scorecard that can be used to measure open policy developments in a given country, in all of the four policy areas that we defined. By looking at open policies across a range of policy areas, we can ascertain the general state of openness of public resources and institutions across the world. It also provides us with the opportunity to identify data on potential synergies between policies developed in neighbouring countries, or in different areas in a given country.

The project was conducted by an international research team with participants from Australia, Colombia, Japan, Poland, South Africa and the United States. Via an international team of researchers, we wanted to ensure a global scope of the project. It provides an overview of the state of open policies in 2015. As part of the survey, we received data on 38 countries thus obtaining coverage of nearly all of the regions of the world (Africa, Asia, Europe, North and South Americas, and Oceania). However, no data was submitted by Middle Eastern countries. Only Kyrgyzstan represents Central Asia in the survey.

Our open policy index is based on data concerning two dimensions of open policies: policy strength and the scope and level of policy implementation.
The first dimension refers to the extent of the existing policy. The following scoring system was adopted:

> **0** – no policy in place
> **1** – some experimentation, at least one notable project, but no policy in place
> **2** – policy discussion in progress
> **3** – policy exists, applies to part of the government or relevant institutions
> **4** – policy exists, applies to the whole government or all relevant institutions
> **5** – government-wide policy exists, additionally implementation guidelines are in place

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[4] Open Knowledge Foundation (2015) Global Open Data Index. http://index.okfn.org/

The second dimension refers to what extent a policy that had been approved is actually being implemented. The following scoring system was adopted:

0 – no implementation

1 – minimal level of implementation

2 – wide-scale implementation is in progress

3 – government-wide implementation is in progress

4 – government-wide implementation is established, takes place on an ongoing basis

5 – level 4 implementation, additionally either policy review and revision process is in place, the policy has been implemented in the long term, or legislative measures have been taken to make the policy long-lasting.

Based on these scores, we have grouped countries into three categories: "leaders", "mid-way", and "delayed". Countries with scores of 5 and 4 are defined by us as leaders in open policy development. Countries with scores between 3 and 1 are mid-way in the process, and countries with scores of 1 or 0 are delayed. (Subdecimal figures were rounded up). For the 5-point score data, please see the Annex to this report.

A detailed methodology and a breakdown of the 5-point score data is presented in the annex at the end of the report.
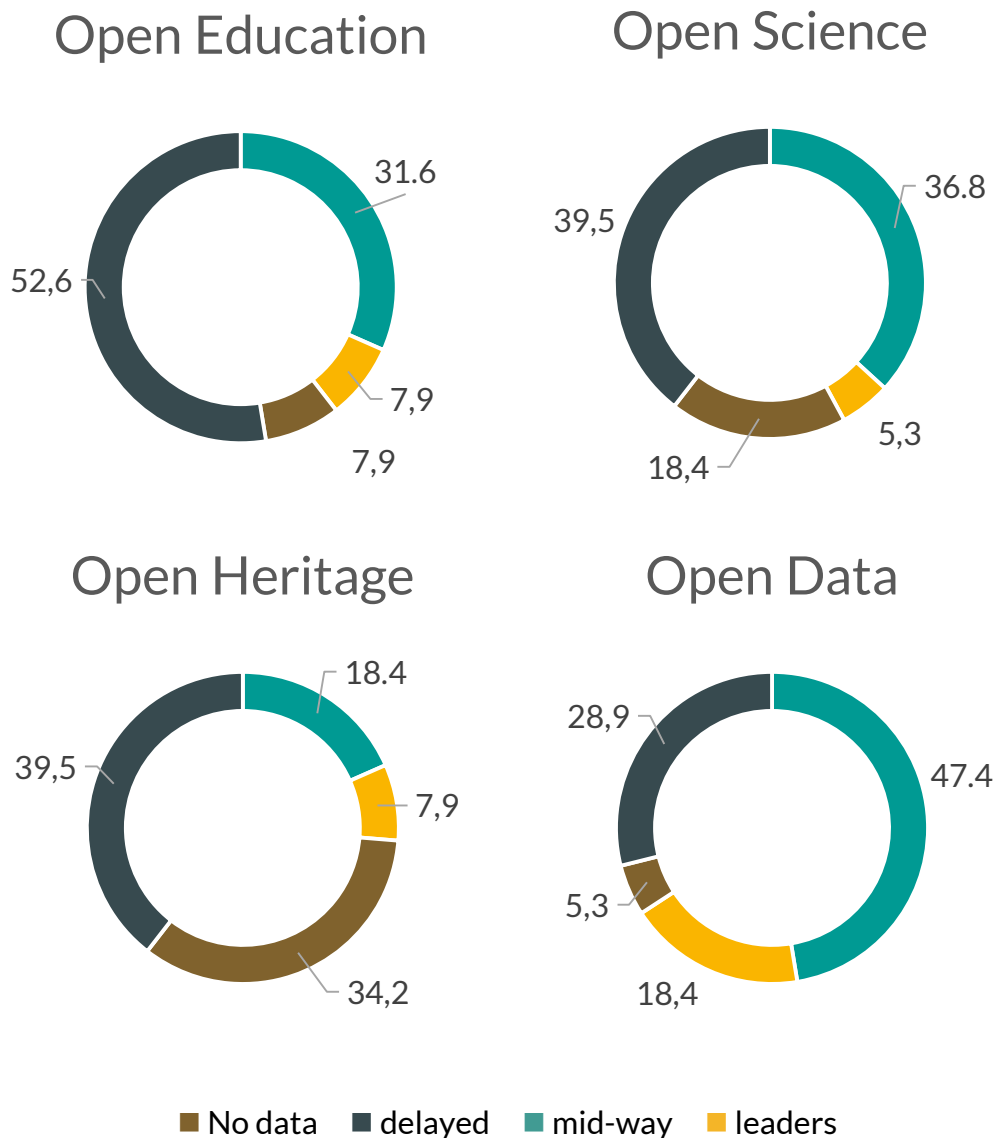
Open policies – global leaders

Based on the available data, we have created a compound index that includes, with respect to each country, data from both dimensions of the index, defined for the four policy areas. This gives us the broadest view of open policy development and allows us to identify the countries that demonstrate the best results in this process.

The top 10 countries with the highest scores are:

Argentina	New Zealand
Bolivia	Poland
Chile	South Korea
France	Tanzania
Kyrgyzstan	Uruguay

Open policies – policy scope

Open Education

31.6
52,6
7,9
7,9

Open Science

36.8
39,5
18,4
5,3

Open Heritage

18.4
39,5
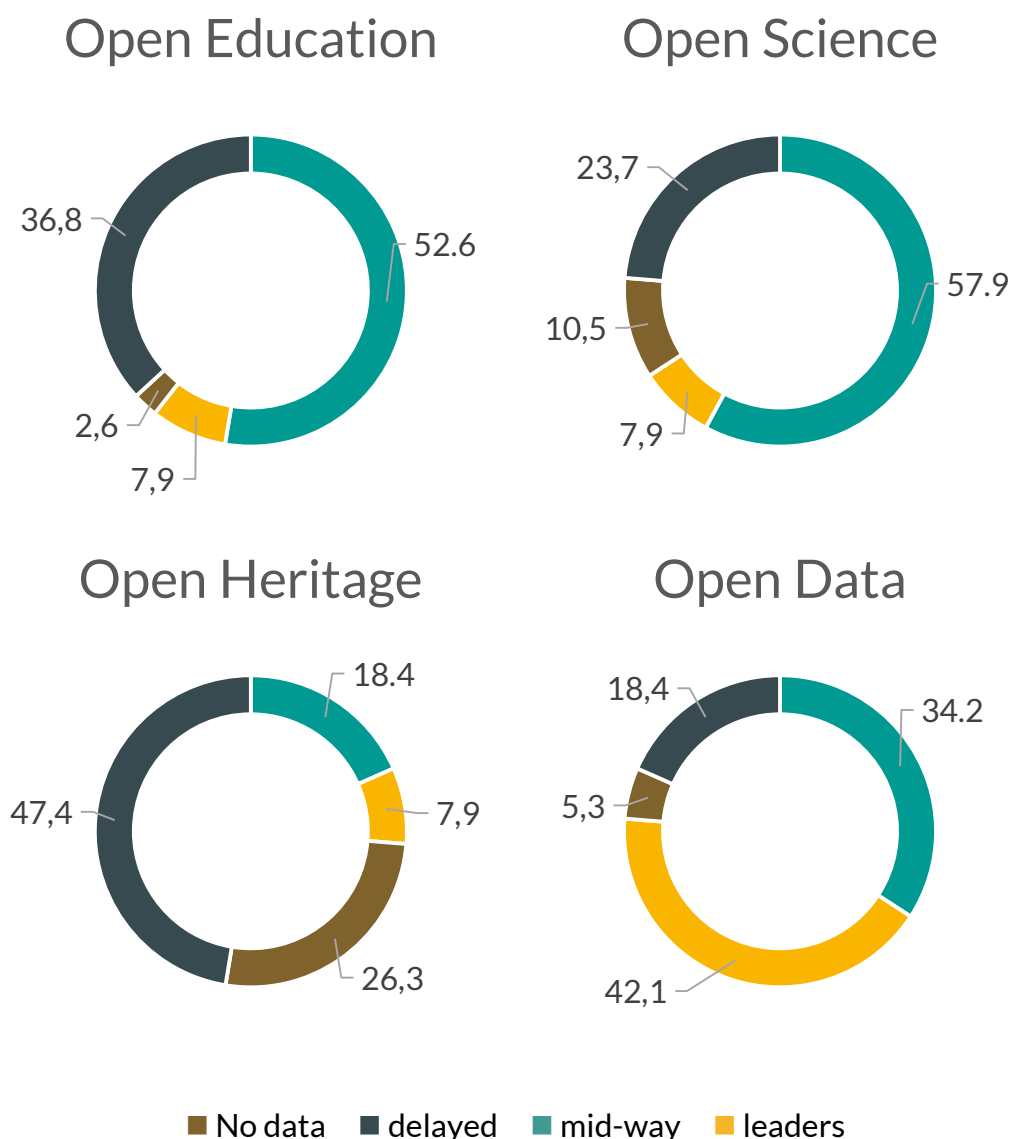7,9
34,2

Open Data

28,9
47.4
5,3
18,4

■ No data ■ delayed ■ mid-way ■ leaders

A comparison of the four policy areas across the 38 researched countries demonstrates different levels of policy development. The most developed is the field of open data with 42% of countries comprising the category of leaders. Such a high percentage of leaders suggests that open data policies are extensively deployed. In the three other fields, however, fewer than 10% of countries were defined as leaders. The field of open heritage policy is the least developed, as the study has shown, with nearly half of the countries being delayed (lack of data for another 25% most likely means that there is no visible policy process at all). The two other fields, namely open education and open science, are similarly developed, with more than 50% of countries classified into the mid-way category.

Eighteen countries are leading in at least one of the four policy areas with regard to the scope of introduced policies. New Zealand is a unique example among all the studied countries since it marked a high, leader-level score for policy scope in three out of the four policy areas that were defined. Five other countries score high in two policy areas: Belgium, France, Japan, Kyrgyzstan, and South Korea.

Open policies – policy implementation

Open Education

36,8
52.6
2,6
7,9

Open Science

23,7
57.9
10,5
7,9

Open Heritage

18.4
7,9
47,4
26,3

Open Data

18,4
34.2
5,3
42,1
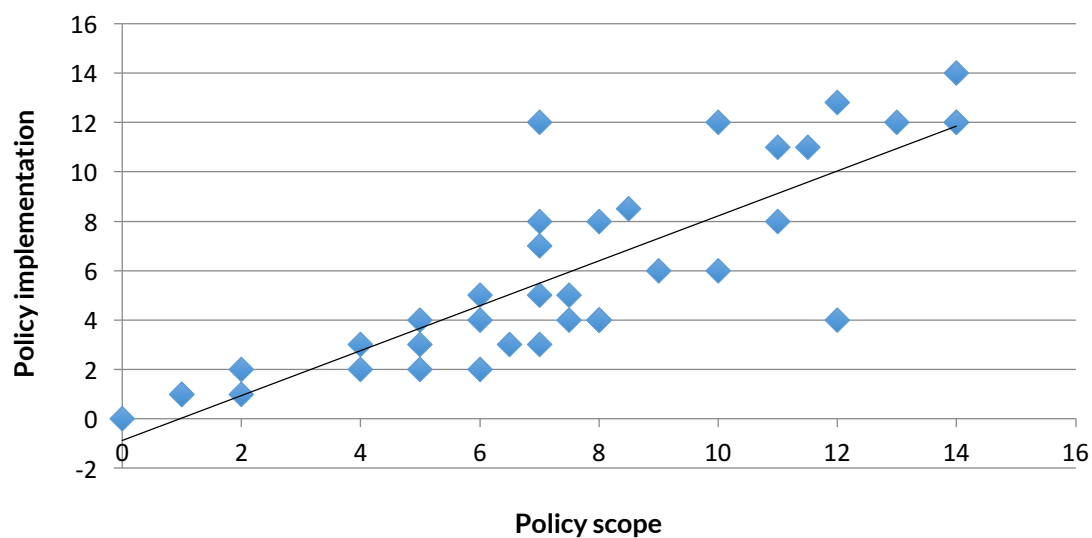
■ No data   ■ delayed   ■ mid-way   ■ leaders

The implementation of policies across the four policy fields follows a similar pattern to the scope of developed policies. In the field of open data, we observed the highest number of leaders (18%), with almost half of the countries in the mid-way category.

Open heritage is the field with the lowest level of policy implementation – almost three quarters of respondent countries have none at all or a minimal level of policy implementation. Over half of the countries are delayed as regards open education policy implementation, and 40% are delayed in the field of open science. Ten countries are leading with regards to implementation of which the following five obtained high scores in at least two policy areas: Argentina, Canada, Chile, France and Kyrgyzstan.

In general, there is a correlation between the scope of developed policies and their implementation. Also, countries are on average more advanced in developing policies and their scope (average score of 7.5 out of 20) than in implementing them (average score of 6 out of 20). Comprehensive policy development and implementation is quite difficult, which demonstrates that open policies still have room to grow in most of the countries covered.

Policy scope and policy implementation

Europe

Country	Reading — Scope	Reading — Impl.	Science — Scope	Science — Impl.	Statistics — Scope	Statistics — Impl.	Arts — Scope	Arts — Impl.
Austria	mid-way	delayed	no data	no data	no data	no data	no data	no data
Belgium	delayed	no data	leader	mid-way	leader	mid-way	no data	no data
Denmark	delayed	delayed	mid-way	mid-way	leader	leader	delayed	delayed
Finland	no data	delayed	no data	no data	leader	leader	no data	no data
France	leader	leader	mid-way	mid-way	leader	leader	mid-way	mid-way
Germany	mid-way	delayed	delayed	delayed	mid-way	delayed	delayed	delayed
Iceland	delayed	delayed	mid-way	mid-way	leader	mid-way	delayed	no data
Poland	mid-way	leader	mid-way	mid-way	leader	mid-way	mid-way	mid-way
Romania	delayed	delayed	delayed	delayed	mid-way	mid-way	delayed	delayed
Scotland	delayed	delayed	no data	no data	no data	no data	no data	no data
Slovak Republic	mid-way	delayed	delayed	delayed	leader	mid-way	no data	no data
Turkey	mid-way	mid-way	mid-way	mid-way	delayed	delayed	delayed	delayed

● Policy Scope

● Policy Implementation

⊘ no data   ● delayed   ●● mid-way   ●●● leader

America

America	📰	⚗️	📊	🎨
Argentina	2 red, 3 blue	3 red, 3 blue	2 red, 2 blue	2 red, 2 blue
Bolivia	2 red, 2 blue	2 red, 2 blue	2 red, 2 blue	1 red, 2 blue
Brazil	2 red, 1 blue	1 red, ∅	3 red, 2 blue	1 red, ∅
Canada	2 red, 1 blue	2 red, 3 blue	3 red, 3 blue	∅, ∅
Chile	1 red, 2 blue	2 red, 1 blue	2 red, 3 blue	1 red, 3 blue
Ecuador	2 red, 2 blue	2 red, 1 blue	1 red, 1 blue	1 red, 1 blue
El Salvador	1 red, 1 blue	1 red, 1 blue	1 red, 1 blue	1 red, 1 blue
Guatemala	1 red, 1 blue	1 red, 1 blue	1 red, 1 blue	1 red, 1 blue
Paraguay	1 red, 1 blue	1 red, 1 blue	3 red, 2 blue	∅, ∅
Peru	2 red, 2 blue	2 red, 2 blue	1 red, 2 blue	1 red, 1 blue
United States	2 red, 2 blue	2 red, 2 blue	2 red, 2 blue	1 red, 1 blue
Uruguay	2 red, 2 blue	2 red, 2 blue	3 red, 2 blue	2 red, 1 blue
Venezuela	1 red, 1 blue	2 red, 1 blue	3 red, 1 blue	1 red, 1 blue

Africa

	Reading		Science		Chart		Art	
	red	blue	red	blue	red	blue	red	blue
Cameroon	●	●	∅	∅	●	●	●	●
Egypt	●	●	●	●	●●	●●	∅	∅
Ethiopia	●●	●●	●●	●	●	●	●	∅
Kenya	●	∅	●●	∅	●●	●●	●●	●●
Nigeria	●●	●	●●	●	●●	●	●	●
South Africa	●●	●	●	●	●●	●	∅	●
Tanzania	●●	●●	●●	●●	●●	●●	●●●	●●
Uganda	●●	●	●●	●	●●	●	●●	●

Asia

	Reading		Science		Chart		Art	
	red	blue	red	blue	red	blue	red	blue
Australia	●●	●	●●	●	●●	●●	●	∅
Japan	●	●	●●●	∅	●●●	●●●	∅	∅
Kyrgyzstan	●●	●●	●●	●●	●●●	●●●	●●●	●●●
New Zealand	●●●	●●	●●	●●	●●●	●●	●●●	●●●
South Korea	●●●	●●	●●	●●	●●●	●●	●●	●●

Other results

Geographically, one notable pattern that can be observed is that there is no clear difference between the developed and developing countries in terms of achievement levels. This stands in contradiction with the leadership positions held predominantly by the UK and the U.S., as indicated by the results from the question concerning foreign countries that are seen as point of reference for own policy initiatives. The achievement levels of the U.S. are not the highest in terms of open policy areas. The factors behind this gap between high-achievers and countries commonly perceived as leaders may be issues such as the availability of accessible information, language, general influence over the openness movement and IT-related practices, as well as inspiring cases and anecdotes. However, the results of this survey indicate that there are many countries that would benefit from seeking inspiration for good policies and implementations from neighbouring countries.

Another notable issue is that some countries rate the "Level of Policy Implementation" higher than "Policy Strength and Scope." The reason behind this may be pilot projects and experimental practices going ahead of policy discussion.

The survey also attempted at finding out whether there are any other countries that act as a reference or as influencers in policy development and related processes. The countries named most often in this part of the survey were the United States of America and the United Kingdom (especially with regard to open data). In Africa, for instance, respondents named other countries in the region as their points of reference, as well as mentioned the importance of international organisations, such as the Organisation Internationale de la Francophonie. In Europe, on the other hand, respondents mostly referred to the European Union and other European states. Here is a link to the correlational diagram visualizing the relationships between the referred and referring countries:

https://drive.google.com/file/d/0Bzv9NtaCViWqaklFWS1xc0pLbzQ/view?usp=sharing

Limitations and Further Research

This study was conducted within the bounds of limited resources. The geographic coverage was far from comprehensive. Coverage of Asia was particularly weak. One reason for this might be the language barrier, while other reasons might be the weak

network relations existing among Asian countries. Still, there is room for improvement of the coverage. Thematic coverage could be expanded to incorporate open source policies for software, and possibly other areas as well.

Appendix: Survey instruments

Below are the main parts of the survey instruments. The survey is also available online at:

https://docs.google.com/forms/d/1Mnkc4_kBDV2JkBnIxqev4MAiLojar0fBsdEZMAh7LV4/viewform

Policy Strength and Scope

What is the status of open policy discussions and decisions (such as legislation and executive decisions) in your country or jurisdiction? Please rate the state of open policy decisions according to the table below.

Policy Strength and Scope

Score	State	Explanation
5	Government-wide decision made + implementation guideline published for quality and standardization	Satisfies the condition set for Score 4 below, and there is some guidance on such issues as metadata, desirable file format, and/ or licensing and rights-clearance.
4	Policy decision made for the entire government or all of the relevant government agencies	OD: All of the government agencies have to follow some decision obligating that they practice open data. OE: All of the relevant government agencies have to follow some decision obligating them to impose open requirements for educational resources developed with

81		government funds. OH: All of the relevant government agencies have to follow some decision obligating them to require cultural heritage data to be open. OS: All of the relevant government agencies have to follow some decisions obligating them to impose open requirements for research data or research papers created using government research funds. (Note that if either data-related policy or paper-related policy is government-wide, the country gets the score of 5 here).
3	Policy decision made for part of the government	There is a decision (law, regulation, or executive decision) applicable to at least one government agency. OD: According to the decision, the government agency must practice an open data approach. OE: According to the decision, the government agency must require open provisions of educational resources for resources developed with government funds. OH: According to the decision policies concerning heritage collections, cultural works and cultural metadata. OS: According to the decision, the government agency must make research papers or research data from government-funded research projects openly available. (Note that if either data-related policy or paper-related policy exists at least for one government agency, the country gets the score of 4 here).

2	Policy discussion in progress	Open Policy in a given area (OE, OD, OH, or OS) is currently discussed or proposed in some parts of the government. Those discussed before but did not become governmental policies are not included here.
1	Some experimentation but no policy discussion	There is at least one notable project in a given area.
0	No activity	No significant discussion nor experiment exists in the given area.

Level of Policy Implementation

This part asks respondents whether the country actually does what its open policies promise – how widely does the country make progress in policy implementation? Please rate the state of the country according to the table below.

Level of policy implementation

Score	State	Explanations
5	4+ at least one of the following: 1. policy review and revision 2. long-term practice 3. legislative measure taken to make the policy long-lasting	Conditions set for Score 4 below are met. In addition, at least one of the following conditions are met: 1. Policy is reviewed and amended at least once after some open information resource is produced. 2. Open information resources have been produced for at least 5 years. 3. There is a law obligating the production of open information resources.
4	Government-wide policy implementation on an	Open information resources are produced under some open policy continuously. All the

	ongoing basis	relevant government agencies are engaged in the production directly (in the case of OD), or by imposing obligations on relevant parties, such as recipients of government funding.
3	Government-wide policy implementation in progress	There are some open information resources produced under some open policy. All the relevant government agencies are, or will soon be engaging in such production directly (in case of OD), or by imposing an obligation on relevant parties, such as recipients of government funding.
2	Wide-scale implementation in progress	There are some open information resources produced under some open policy. And it involves at least two or all of the relevant government agencies either directly (in the case of OD), or by imposing an obligation on relevant parties, such as recipients of government funding.
1	Some implementation attempted	There are some open information resources produced under some open policy. But it is limited-time effort or an experiment at one government agency.
0	No implementation	There are no open information resources produced, although there is some policy requiring such production.