# The Trans-lingual Commons: Translating Open Content

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# Abstract

*The Internet has, undoubtedly, transformed the way in which we create, transform, transmit and use content. By eliminating physical and geographical barriers to content sharing, the global network offers unprecedented opportunities for collaboration and access to knowledge. However, the utilisation of these developments is hindered by several obstacles. These include the language barrier and the dominance of English in online content, as well as restrictive copyright regimes that limit sharing and translation of knowledge in today's connected world. This paper discusses open content as a viable option to address these issues. It highlights the need for localised knowledge as a requirement for effective development, and explores the challenges impeding the free flow of knowledge across the language barrier. Open alternatives to traditional copyright regimes are then discussed, and their effectiveness in addressing the language issues is demonstrated though two case studies. The paper concludes by recommendations for the use and adoption of open content in the development context.*

# Introduction

Creativity and innovation are essential ingredients for the development of human society. Scientific, economic and social evolution requires the orchestrated efforts of many intellectuals, working together on overcoming challenges to human development and inventing novel concepts, theories, tools and technologies that can be effectively exploited to serve humanity and improve the wellbeing of society. Think for a moment of the scale of technological and social developments in our modern world. While some may argue that these developments have been misused by those with malicious intentions, no one can deny the considerably higher quality of life we enjoy compared to our ancestors. Cures now exist for infectious diseases that once could destroy a complete nation, travel and communications became much easier and cost effective that people can now engage in dialogues with each other in ways that were unimaginable just a few decades ago, and the list goes on.

Such massive developments could only become possible through the empowerment of researchers and intellectuals to capitalise on the gigantic body of knowledge built by their fellow creative workers. Every innovator taps into the knowledge sources produced by others and contributes back to the development of human wisdom. However, with the increasing complexity of creative and intellectual work, appropriate incentive systems should be implemented to motivate intellectuals to invest their time and effort in contributing to the creation of global knowledge. Without such systems, very few are willing to devote their scarce resources to expand the borders of knowledge in the highly demanding modern lifestyle. But these incentive systems should be carefully designed to serve their main purpose:

motivating intellectuals to produce creative work by guaranteeing them a fair return on their investment of intellectual and financial capital. They should not block access to knowledge in such a way as to prevent others from capitalising on the previous body of knowledge in their pursuit for creativity and innovation.

Traditional copyright regimes were devised to serve exactly this purpose. They promise any intellectual worker who is willing to spend time and effort developing creative materials (artistic, scientific, technological, etc.) an appropriate reward for her investments by giving her the exclusive right to exploit these materials commercially for a certain period of time. Copyright laws also (at least theoretically) guarantee access to these materials for others through different mechanisms, such as fair use, exceptions and limitations and by limiting the term of exclusive protection of creative works.

The Internet has undoubtedly revolutionised access to knowledge and creative content on a global scale (Gayer & Shy, 2005). Its ability to bypass geographical and physical barriers previously constraining distribution of content and access to information, combined with the unsurpassed power of digitisation in storing, indexing, searching and retrieving creative materials have changed the dynamics of the creation, development, distribution and access to information and creative content. More people are now able to retrieve content, develop their own and distribute it to practically anyone in the world with a connection to the Internet, in what may be called the democratisation of content creation and distribution tools. Nevertheless, existing copyright laws which were mostly developed in the offline era did not evolve sufficiently enough to enable this new movement to prosper and grow. Several

authors have argued that traditional copyright regimes have serious flaws that render them ineffective in the rapidly changing electronic information age (Cedergren, 2003; Lessig, 2004; Stallman, Lessig, & Gay, 2002). The limitations imposed by these regimes can be clearly noticed in their blocking of the flow of knowledge across the language barriers (Venuti, 1995). In a time where much hope is being placed on knowledge and innovation to address the massive problems faced by humanity, such as eradicating poverty, providing appropriate healthcare to those who can least afford it, and combating climate change, just to name a few examples, traditional copyright systems are preventing the knowledge generated by humanity to be translated into other languages so that researchers, practitioners and policy makers in other parts of the world can exploit it to tackle the challenges they face.

This paper aims to investigate the potential afforded by open approaches to content licensing and distribution in facilitating the free flow of knowledge across the language barriers. It will highlight the need for relevant content presented and distributed in local languages as a distinctive enabler for development, knowledge dissemination and development research activity. Several case studies, supported by the International Development Research Centre (IDRC), will be described in which the open licensing of original content provided an opportunity for this content to be translated into other languages and subsequently exploited by local communities to improve their quality of life. The impact of these cases will be evaluated, and the paper concludes with recommendations for action with regards to openness in content licensing and translation.

## Localised Knowledge and Development

The Internet and the modern information and communication technologies revolution have transformed the ways in which we create, distribute, share and use knowledge. The power afforded by these technologies to transcend geographic and physical barriers has been preached as an enabler for access to knowledge and subsequently a viable contributor to the development of knowledge societies. However, the vast majority of the content created and shared through the emerging ICTs is available only in English. This has resulted in the dominance of the English language in modern science and knowledge, and created a linguistic power imbalance in the global information society (Helms, Lossau, & Oslender, 2005).

In a 2003 study by O'Neill et al. (O'Neill, Lavoie, & Bennett, 2003), English was reported to dominate 72% of all single-language websites. Other studies estimated the amount of English content on the web to be around 69% of all online content (Morganti, 2009). These trends still hold true while the numbers of Internet users who are non-English speakers are increasing dramatically. Today, native English speakers constitute less that one third of Internet users (Atlas, 2004). Several researchers have argued that this "linguistic hegemony empowers some (native speakers mainly) while disempowering others", which has significant sequences in limiting the richness and diversity of the global knowledge society (Hassink, 2007). Others opinions viewed the increasing dominance of the English language as a threat to other languages, in what Skutnabb-Kangas and Phillipson have termed "linguicide" (Skutnabb-Kangas & Phillipson, 2001).

The impact of this reality is clearly evident in the area of scientific research. The dominance of the English language mandates that scientists and researchers must develop reasonable understanding of the English language to access previously published research and achieve international recognition. Meneghini and Packer (Meneghini & Packer, 2007) describe the dilemma created by the dominance of English as the language of science, despite the fact that the majority of scientists do not speak English as their native language. They argue that "authors usually want to attract interest to their work to enhance their reputation both nationally and internationally". On the other hand, it is easier for readers to access and understand articles when they are written in their native language. They draw an example of healthcare professionals who want to use the information they acquire to benefit their clients, communication with whom usually utilizes the local native language. However, if research is only published in the local language, important knowledge may become inaccessible to the outside world.

Some scholars (Kushner, 2003) have also argued that if researchers do not establish a meaningful and culturally relevant scientific semantics in their native languages, the country and its culture will not be able to absorb the scientific ideas and knowledge, and will consequently fail to exploit this knowledge to address the issues and challenges their societies face. It is worth nothing in this regard that "of the past 25 winners of the Nobel Prize in Literature, only 9 wrote their masterpieces in English; the remaining 16 laureates wrote in other native languages" (Meneghini & Packer, 2007).

In higher education, several arguments were laid out that English is the *lingua franca* of study and instruction, even in non English speaking communities. However, a study by Holmes (Holmes, 2004) of higher education intuitions in seven non English speaking countries revealed trends towards the use of local language in online resources. Holmes concluded that most of his study respondents use English less than their national language in Internet usage. He further suggests that "although the WWW does itself appear to be multilingual, in that it offers sites and pages in a wide variety of languages, usage is multilingual only for a minority of users". For Internet users whose native language is a major language, such as French, Arabic and Italian, have less need to learn and use English in their studies. Conversely, they tend to depend on the online resources available in their native language. Another study by Peel (Peel, 2004) found that in the United Arab Emirates, while Internet use by students in higher education reflects the students' life in college, culturally, a clear preference appears for Arabic.

These trends in favouring local languages in the exploitation of scientific knowledge and in higher education call for initiatives that bridge the language barrier and facilitate the transfer of knowledge between languages. Such initiatives, particularly in developing countries, will face significant challenges imposed by increasingly rigid copyright protection regimes. Copyright protection prohibits the translation of any copyrighted materials without an explicit permission from the copyright holder, and scientific and educational content is no exception. Obtaining such permission will usually incur considerable financial and administrative costs that could prove to be prohibitive for institutions in the south. These institutions are already suffering from the increasing costs of journal subscriptions and text book purchase (Suber, 2005).

Emerging open access and access to knowledge movements aim to address this issue by facilitating sharing and translation of creative content and scholarly work. The next section discusses copyright systems and some of its open alternatives.

## Copyright and Openness

The original copyright law was devised to protect printed books from copying by others. This is clearly evident from the name itself: "copyright". At the time, this was the only viable way for mass production and distribution of creative content, which was mostly written materials. Technological developments have brought major breakthroughs in the ways content is created, stored and distributed. Two particular technologies carried the most significant impact on change: the advent of digital computers and the Internet.

Digital computers have fundamentally transformed the ways in which content can be created, stored and reproduced. They enabled creative materials to be represented in digital format. Digitally representing content liberates it from the constraints of physical mediums. Information content can be stored without the need of paper and books, music and video can be saved without physical tapes, discs or other storage media. Moreover, copying became much easier, as the replication of digital content does not require any specialised skills or materials or expensive equipment. With a simple mouse click or by pressing a couple of buttons on the keyboard, you can literally create as many copies as you want. Additionally, digital copies do not degrade the quality of the material. In the pre-digital era, copying implied a certain reduction of quality.

Although digital computers have enabled the easy creation, storage and copying of content without the constraints of physical media, distribution of digital content remained hostage to the constraints of the physical world. Sending a digitally represented audio track or scientific research still requires placing it on a physical storage device (a floppy disk, a CD-ROM disc or a digital tape) to be sent physically to the recipient. It was not until the invention of computer networks that these constraints were relaxed and eventually eliminated. Computer networks enable digital computers to communicate among each other and exchange digital content. The largest, and most well known example of which is the Internet, which connects hundreds of millions of digital computer around the globe to a single, unified communication medium. This breakthrough destroyed the barriers of physical distribution of digital content, creating a compelling case for sharing and communication. While sharing content prior to the digital computer and networks age involved financial costs, such as the price of copying media and the costs of using copying machines and equipment, sharing digital content is practically free. If you want to share a music album with your friend or a scientific paper with your colleague, all what you need to do is make a copy of the digital file containing this material and send it over the local network, or maybe the Internet.

The new dynamics for creating and distributing content have both positive and negative implications. On the positive side, the Internet has enabled easier access to information and content resources without regard to geographical or political barriers. Anyone connected to the Internet anywhere in the world can access and retrieve digital content from anywhere else. This effect is considered by many to be a

significant step towards the empowerment of under-served communities to access information and to contribute to the wellbeing of societies in developing regions. Furthermore, digital content production and distribution is considerably easier and much less costly than other formats. Users can now utilise widely available tools and resources to generate knowledge, art and cultural materials without being constrained by the economies of scale governing the physical production and distribution of content. These two factors have facilitated and promoted communication and dialogue among people from all corners of the globe. In essence, digital computers and the Internet have democratised the tools for producing and distributing content.

On the other hand, simplicity and ease of copying and sharing encouraged the development of a sharing culture in which participants are willing to copy and exchange digital content. Different online providers started to offer file exchange services to facilitate sharing, and user communities developed rapidly around these services and technologies (such as Peer to Peer file sharing). However, sharing of copyright protected material in any format (including the easily distributable digital format) constitutes a violation of copyright law and is illegal in most countries of the world. Publishers and content distributors attempted fiercely to block the proliferation of these sharing communities, arguing that illegal copying and sharing (also called piracy) negatively affects their revenues, and consequently impairs the future development of creative content. The very nature of networking and Internet file sharing makes the enforcement of copyright laws a very difficult task. Therefore, publishers and content distributors resorted to a different strategy. They lobbied for more restrictive and strict copyright legislations, while at the same time introduced different technologies to prevent users from copying digital content.

These increasingly restrictive copyright laws, combined with the adoption and implementation of copyright protection technologies, pose a direct threat to the fundamental objective of the creation of copyright: the balance between benefits to authors and society. They also hinder the ability of the Internet to perform effectively as a platform for innovation and creativity and as a tool for human and social development.

The evolution of copyright laws steered them away from their primary objective in favour of narrower interests of several corporations. Instead of stimulating the development of knowledge and improvement of human life, they imposed strict restrictions on access to knowledge and information and impaired the potential of the Internet as a platform for global development (Lessig, 2004). While people in developed countries can afford access to original content thanks to high income levels, those who live in less developed regions are prevented from obtaining essential knowledge and information they need as the associated costs are incredibly prohibitive. This creates a vicious cycle, low income means more limited access to knowledge, which translates into lower ability to develop and advance, driving income even lower. People in less developed regions of the world can not reap the benefits afforded by the Internet, and thus can not contribute to human development. Effectively, they are blocked from innovation and creativity.

To address this dilemma, open access emerged as an initiative to facilitate knowledge sharing and development. Premised on the principles of sharing and freedom, open access empowers users to freely use, modify and redistribute content for the benefit of

all. It has been defined by the Bethesda (Brown et al., 2003) and Berlin (Redalyc, Clase, & In-Com Uab, 2003) statements as:

> "For a work to be OA, the copyright holder must consent in advance to let users copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship…".

Open access utilizes several legal instruments to achieve its purpose. An example of these instruments is Creative Commons (Creative Commons, 2003), which provides a set of licenses that can be used to license content in permissive manner so that users can exercise the freedoms afforded by open access. In this model, authors decide on the permissions or restrictions they want to make their works available under, and choose the appropriate legal licensing terms accordingly. Creative Commons also offers a simplified, human readable version of the license agreements to enable users to quickly understand their rights when using the works released under Creative Commons licenses.

Despite its recent history, open access proved to have a significant impact on scholarly publishing and education has been significant. Currently, more than 2,500 peer-reviewed journals are available as open access (around 10% of the world's total scholarly journals) (Swan, 2007). Prominent examples of open access journals include those published by the Public Library of Science (PLoS) (PLoS, 2009) and BioMed Central (BioMed Central, 2009). Moreover, open access journals seem to have higher impact than their traditional counterparts (Antelman, 2004; Swan, 2007). A study by

Eysenbach (Eysenbach, 2006) found that open access journal papers are cited earlier and more often than non-open access papers.

In education, similar trends can be observed in the increased availability of open access educational materials and content. For example, the Global Text Project (Global Text Project, 2009) aims to create a free library of 1,000 high quality text books for students in developing countries. Massachusetts Institute of Technology (MIT) has also released virtually all MIT course content online under MIT's OpenCourseWare initiative (MIT, 2009b). Sine July 2007, 10 million course zip files have been downloaded from the OpenCourseWare website, along with 3.7 million video and audio files (MIT, 2009a).

One of the most significant implications of open access is its ability to facilitate translation of open content between languages. Contrary to traditional copyright protection regimes, no permission is required to translate open access content. In most cases, open access license only require attribution of the translated work to its original author. Translation of open content is discussed in the next section.

## Translation of Open Content

By eliminating the need to obtain explicit permission to translate content, and overcoming the (sometimes excessive) copyright royalties imposed on translators, open content offers a viable solution to create knowledge in local languages and facilitate the utilization of such knowledge in address local community problems and challenges. Open content forms the basis of an environment in which knowledge can

traverse the language barrier through the contributions of both professional and volunteer individuals and institutions.

Evidence of this positive aspect of open content can be noticed in the translation efforts invested in translating MIT's OpenCourseWare. As of June 2009, 791 courses have been translated into other languages, and 220 mirror sites established globally (MIT, 2009a). Traffic statistics also show that 54% of site visits originate outside the United States. The Global Text Project also aims to translate its textbooks into three languages: Arabic, Chinese and Spanish, in addition to English.

In the following sections, we will discuss two specific cases in which open content was leveraged to make knowledge available in local languages, and the impact of these cases.

**Wireless Networking in the Developing World**

In 2006, the International Development Research Centre (IDRC) of Canada supported a project to create an open resource for community wireless networks. The resource was intended to become a practical reference for local communities to design, implement and maintain low-cost wireless networks. The idea was to leverage locally available resources, open knowledge and free and open source software to reduce costs, build local capacity and install reliable wireless networks. To create this resource, an innovative model was conceived in which a group of wireless networking experts gathered for a week and worked together on writing a book. The final product came in 254 pages, and was called: "Wireless Networking in the Developing World:

A practical guide to planning and building low-cost telecommunications infrastructure" (also referred to as WNDW).

In keeping with the original spirit behind the effort to make the resource available to the widest audience possible, particularly in the developing world, the book was licensed under a Creative Commons Attribution-ShareAlike license. This license enables users to copy, distribute, display the book's content, as well as adapt, modify or transform it, given that the proper attribution of the work to its original authors is maintained, and that any modified version are distributed under the same license.

The popularity of the WNDW increased rapidly after its launch in 2006. The book was released in an electronic format on the www.wndw.net website, along with a print-on-demand hard copy service on Lulu.com. However, the increasing readership growth of the book was limited to English speakers. Local communities in developing parts of the world usually do not enjoy sufficient English language proficiency to understand such technical materials, and are consequently incapable of transferring it to their communities.

To address this obstacle, and enable local communities to benefit from this resource, a decision was made to translate the WNDW book into other languages relevant to developing countries. The fact that the original book was published and an open Creative Commons license facilitated the translation process as no permission was required to be obtained from the original authors. Otherwise, the process may have proved to be arduous, as explicit permissions should be obtained form the 17 contributors to the original English version. In 2008, the first edition of the book was

translated into Arabic, and a dedicated website launched for the Arabic edition (www.lasilky.org). The Arabic edition quickly captured momentum, and was downloaded 10,000 times in less than 6 weeks. The book was also translated into French and Spanish.

Following the success of the first edition, the editorial group decided to update the book based on feedback from the readers' community and emerging technological developments in the field. The second edition was released in December 2007, and came in 425 pages. Translation efforts of the second edition were started quickly after its release to make it available in Arabic, French, Spanish, Portuguese and Indonesian. These efforts leveraged the flexibility afforded by the open licensing of the English version to shorten the time it takes to become available in other language communities.

In July 2008, the second Arabic edition of the book was released. Combined, the first and second Arabic editions of the WNDW book attracted 43 further inquires from interested readers. These include a project in Sudan to use wireless for poverty eradication, a WiMAX-based service provider project in Palestine, a long distance wireless link in Syria, a wireless network for a university campus in Syria and a mobile wireless project in Iraq. Several readers also requested information about additional technical resources in Arabic, a clear indication of the need for local technical content. As of October 2009, the number of WNDW downloads exceeded 2 million (Figure 1). The English editions lead the stack, followed by Spanish. Arabic editions come third, with more than 467,000 downloads.

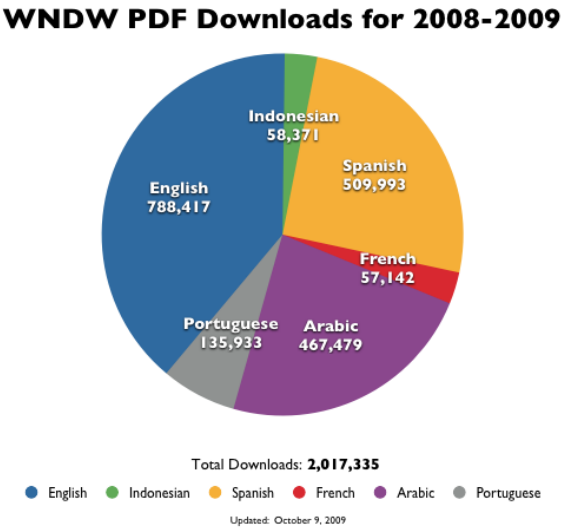


Figure 1 (Source: www.wndw.net)

## Voice over IP (VoIP) for Development: A Primer

Another initiative funded by IDRC to create high-impact technical knowledge resources is the development of the "VoIP-4D Primer". This booklet aims to capitalise on the increasing popularity of voice over IP to empower local communities in developing countries to design and build their own low-cost telecommunication infrastructures. It leverages developments in open source communication software applications and inexpensive equipment to enable users to establish voice communications in areas that are otherwise perceived by telecom providers as not having a viable business case.

The VoIP-4D booklet was developed in four languages in parallel: English, French, Arabic and Spanish. The four editions were launched simultaneously on the 4th of December 2006 by IT46 in Sweden[1]. In order to ensure that the booklet's content will reach the largest possible audience, an open Creative Commons license was chosen

[1] www.it46.se

for its release. In this case, however the authors decided to prevent commercial exploitation of the content without explicit permission. Users will be free to use, modify and redistribute the content under the terms of the Attribution-NonCommercial-ShareAlike license, as long as they do not make financial gains from the content itself. This is an attractive model for authors who want to open up their content to reach wider audiences; while at the same time would like to retain the option of benefiting financially if their content is used by others for commercial purposes.

The impact of opening up the VoIP-4D Primer is clearly evident in the community adoption of the booklet. For example, a community of wireless community networking trainers expanded the content of the primer and released a second edition, along with an instructional presentation of the content. As this use does not have commercial interest, the trainers could take the liberty in improving the content, with no permission required from the original authors. Two capacity building workshops in local communities have also been reported to utilize the primer as their primary training materials.

## Discussion and Recommendations

In this paper, we argued that the emerging open alternatives to the restrictive traditional copyright regimes provide viable enablers to break the language barriers in today's global knowledge society. These options facilitate and empower a vibrant translation movement of open content, and counter the dominance of English as the lingua franca of modern science and the Internet. They also enable local communities

to access, understand and exploit available knowledge to tackle the problems that challenge their development. The paper demonstrated the value of localised content and showed evidence of trends towards higher utilisation of local languages in scholarly and educational endeavours.

By adopting openness in content publishing and distribution, and supporting open access and access to knowledge initiatives, communities in developing countries can make significant leaps in their pursuit of becoming globally integrated knowledge societies. Open content eases the restrictions imposed by traditional copyright regimes on content sharing and adaptation, and virtually eliminates the costs associated with licensing and royalties for making content available in local languages.

We described two cases in which open access facilitated the translation of technical content relevant to developing countries into their local languages. In both cases, openness shortened the time it takes for the content to become available in other languages, and simplified the translation process by eliminating the need to acquire permissions and approvals. Moreover, the cases demonstrated the significant impact achieved by the content as a result of its availability and relaxed copyright terms.

In order to utilise the benefits afforded by openness, governments should take proactive measures to promote its use and adoption. National policies should be formulated and implemented to favour the use of open content whenever possible in school and university curricula, training materials, government publications, etc. Additionally, translation initiatives should be focused primarily on translating open content, as this will increase the return on investment of the translation efforts, and

will stimulate wider adoption of the translated content. It also encourages re-translation of any derived works back into the original language.

On the personal level, active participation in the development, translation and distribution of open content proved to be a powerful reputation device that can quickly elevate the readership and audience of authors by making their works available under favourable licenses. It also facilitates translation to other languages. The case of Paolo Coelho (Pirate Coelho, 2009), the infamous Brazilian author, is frequently cited to demonstrate that releasing creative work under favourable licensing conditions usually leads to higher revenues to the author and the publisher. By combining the creative power and will of individuals and governments in the south, and joining the increasingly growing global collective wisdom to learn and to contribute, the world will undoubtedly be much better positioned to address its development challenges.

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