Publication of
Public Broadcasting Content
in the Commons

A Practitioners' Statement

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1. Introduction

In 2010 Peter B. Kaufman, CEO Intelligent Television, published the white paper "Video for Wikipedia and the Open Web" about the open publication of video.[1] When Kaufman speaks of "open publication" he's referring to the option that owners of copyright have to license their content to third parties. The various open licenses (notably Creative Commons licenses[2]) that rights holders can use, determine the way in which third parties are allowed to use, modify and distribute said content.

Kaufman's white paper offers an analysis of the requirements, risks and rewards of publishing openly, as well as practical ways in which to openly publish video online. Almost a decade later however, open publication of video is far from common practice, especially when it concerns newly produced content. This should come as no surprise considering commercial interests. After all, the opportunities for monetisation of openly published materials are significantly less (though they exist!). For public broadcasters however, serving a public cause often involving the widespread distribution of information and knowledge, open publication offers clear opportunities to expand their reach and impact. The European Broadcasting Union states that public broadcasters' output is designed "to inform, educate and entertain all audiences".[3] These efforts are still largely characterised by the broadcasting paradigm (of linear and centralised transmission) that current day media consumption is steering away from. In 2016, online video accounted for 73 percent of all consumer internet traffic, which is expected to rise to 83 percent in 2021.[4] The scale and speed at which the internet enables distribution of video changes the way in which people find, consume and spread knowledge. Organisations who have the mission to distribute information to a wide audience need to carefully consider online video distribution as a possible outlet to reach their audiences most effectively. Publishing materials online under open licenses maximises opportunities for audience engagement and through that increases impact and reach. Audiences can become (co-)producers and are enabled to find creative and unexpected ways of reusing content. This leads us to ask the question: why *don't* public broadcasters publish materials openly?

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1 Kaufman, Peter. 2010. Video for Wikipedia and the Open Web. Intelligent Television http://www.ibiblio.org/cccr/icom/wikipedia.pdf

2 The licenses are described in detail on the Creative Commons website: https://creativecommons.org/

3 https://www.ebu.ch/about

4 Cisco Visual Networking Index: Forecast and Methodology, 2016–2021 June 6, 2017

In this practitioners' statement we look closely at the case of the Dutch public broadcaster VPRO[5] and their experience with the open publication of newly produced public broadcasting content in relation to the series *The Mind of the Universe*. We also consider how Kaufman's claims relate to this particular case:

By participating in the great video conversation on the web, cultural and educational institutions have the ability to engage the public; have the public increase the online visibility of the institution's media; educate people; enable fortuitous discovery; and even facilitate business opportunities for clip and image licensing. (Kaufman, 2010: 20)

To do so, this paper discusses the various stages of open publication, from pre-production to the "afterlife" of the openly published materials. It concludes with recommendations for public broadcasters who want to publish under open licenses, and recommendations to the Wikimedia movement to profit more from openly licensed video.

The goals of this paper are threefold:

1. To promote the open publishing of newly produced video content among (public) broadcasters, professional producers, educators, etc.

2. To enable other organisations to openly publish video by sharing lessons learned from *The Mind of the Universe project*.

3. To inform the Wikimedia community of the potential for collaboration with public broadcasters in the production of video for the commons.

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5 https://www.vpro.nl/

About the Television Series
The Mind of the Universe

Human knowledge is growing exponentially. On average, our shared knowledge doubles every 13 months. *The Mind of the Universe* is a unique international open source project based on the rapid evolution of our knowledge.

The ten-part television series from Dutch public broadcaster VPRO shows tomorrow's world through the eyes of the greatest thinkers and scientists of our time. They look beyond the boundaries of their discipline towards the future state of our knowledge.

The series is edited in a way that enables each broadcaster to remake the series with its own presenter. In the Netherlands the presenter was Prof. Dr. Robbert Dijkgraaf, the current director of the Institute for Advanced Study at Princeton University, with the Dutch version of *The Mind of the Universe* being broadcast in 2017. Due to the international and global nature of the show as a laboratory of ideas and as an open forum for dialogue, UNESCO has given the project their full support. UNESCO's name and logo have been used in the show's communication, and its network has contributed to the promotion of the Learning Experiences that were developed using footage from The Mind of the Universe.

An integral part of the production, and in the spirit of the accumulation of human knowledge theme of the programme, VPRO made all of the raw material that forms the basis of the programme available under a Creative Commons - Attribution Share-Alike license, thus explicitly encouraging the reuse of this body of raw video material about science and knowledge. One specific re-user of this material are projects run by the Wikimedia community, and as such—very much in line with the subject matter of the series—contribute to the goal of providing free access to the sum of all human knowledge that Wikimedia aims for.

Other communities are also encouraged to reuse the material, for instance, in open educational resources and investigative journalism. The material that is made available includes interviews with highly-esteemed scientists, such as:

- *Segenet Kelemu* (biologist, Kenya),
- *Yoshua Bengio* (computer scientist, Canada),
- *Lee Cronin* (chemist, Scotland),
- *Yuri Oganessian* (physician, Russia),
- *Jian Wei Pan* (physicist, China)
- *Brother Guy Consolmagno* (astronomer, Vatican City).

The full list can be found *here*.

Partners of *The Mind of the Universe* project are VPRO, the Netherlands Institute for Sound and Vision, NPO and UNESCO.

"For the Dutch national public broadcaster VPRO it is always important to give new substance to its public task. It's fantastic to see how the open source material from The Mind of the Universe finds a new audience through these online learning experiences. I'm glad that the interviews are given a real second life, and now reach a new, broad and international audience."

— **Lennart van der Meulen Director-General VPRO**

"Openness, curiosity and the willingness to learn are important for everyone. Open society, creativity and imagination move us forward. They also inspire science to be innovative. Innovation is the key, and Unesco sponsored open access Dutch television series called The Mind of the Universe in which scientists, worldwide, present their visions of the future."

— **Barbera Wolfensberger, OCW Director General for Culture and Media, at the 39th General Conference of UNESCO in 2017.**

2. Pre-Productions

CONCEPTUALISATION

While conceptualising The Mind of the Universe, directors Rob van Hattum and Gijs Swantee sat down with renowned Dutch scientist Prof. Dr. Robbert Dijkgraaf, the director of the Institute for Advanced Study at Princeton University. The idea of making a series with researchers working at the cutting edge of various scientific fields immediately felt like something that should not be done in isolation, but rather in close collaboration and exchange with partners from across the globe. Scientific articles still often exist behind paywalls, making them accessible only to those fortunate enough to study or work at recognised universities. Openly distributing the series across various platform on the internet by its very nature holds the potential to overcome such barriers, something the makers of *The Mind of the Universe* recognised from the beginning.

LEGAL LIMITATIONS

When the directors took the idea of open publication to the NPO (the coordinating organisation of the Dutch public broadcasters) the initial response was very positive. However, there were some legal challenges to overcome: Dutch media law (Mediawet, 2008) does not allow for the commercial exploitation of public broadcaster's activities by third parties (section 2.141). A solution was found by approaching open publishing as a way of engaging with new communities around the topics discussed in the series, and by doing so, support the production of future TV programmes. One of the results of dealing with these legal challenges was the fact that the television series that was broadcast on the Dutch TV network would not be available under CC license; within The Netherlands the TV series could only be watched through the official NPO channels. Outside of the Netherlands, however, it is available to view on YouTube. Within these limitations it was now possible to release the raw interviews with scientists and researchers as well as the B-roll under a CC license.

FUNDING AND PARTNERSHIPS

The initial ambition for *The Mind of the Universe* was twofold: to cooperate with international broadcasters to create various language versions of the series, and secondly to work together with universities to see the material of the series reused in an educational setting.

The idea was to create a global platform that would allow international broadcasters to download the raw material and upload their own edits of the it to the same platform. Even though the responses from international broadcasters were generally positive, there were two reasons why partnerships were not formalised. The first was the broad and abstract subject matter of the series which made it difficult for potential partners to see exactly where it fit in their existing activities. Secondly, the requirement to publish materials created using raw materials from *The Mind of the Universe* under an open license was new to these broadcasters, causing uncertainty about the legal and practical feasibility.

VPRO reached out to UNESCO to explore the opportunities for collaboration with educational partners in the project. UNESCO saw the value of The Mind of the Universe, including the ambition to publish materials under open licenses and the project was granted official patronage. This helped open doors to foundations, educational networks, open universities and the like. However, in the initial stages this did not result in any additional funding. This was exacerbated by the fact that VPRO was still developing their ideas and could not always clearly articulate their questions and the added benefits of open publication. Only in the post-production stage were partnerships with universities formed (more on this below).

VPRO also reached out to the Netherlands Institute for Sound and Vision (also known as Sound and Vision). Sound and Vision is the national audiovisual heritage institute of the Netherlands. For many years it has actively explored opportunities for open video distribution to enhance the reach and utility of its collection. In the pre-production stage the partnership focused mostly on understanding how open publishing would impact the production process and the facilities required to enable future reuse, for example on the Wikimedia projects.

Vital for *The Mind of the Universe* were the scientists of international acclaim who were interviewed. These scientists are unlikely to carve out time in their schedules to be interviewed for a TV series which would be aired only for a small Dutch audience. The fact that the interviews would be published under open licenses, or 'Open Source' and thus serving a much wider audience was one of the key factors that won them over.

PRE-PRODUCTION RECOMMENDATIONS
These experiences lead to the following recommendations:

- Make the consideration of open publication an integral part of the conceptualisation stage of new projects, especially those that have strong informative and educational potential. Ask yourself: how could open publication of (parts of) these materials help us reach our goals?

- Investigate and explore the possibilities for open publication within the legal limitations that are applicable for public broadcasters in the country concerned.

- Make sure you can clearly explain and show the added value of open publication of the specific materials. What potential use-cases do you see for this content after publication? If possible, create pilot material before approaching funders and partners.

- Take inventory of possible reuse scenarios, for instance in education and on Wikimedia projects, and where possible involve those communities early on.

3. Production

PROCESS

During production planning it is helpful to initially differentiate between what is required for production of the TV show and what specific requirements are needed for the open publication of raw, uncut materials. These requirements, for example, can lead to a different style of conducting interviews: more discipline is required from the interviewer, and there is less room for error when the interviews are published openly in full. Additionally, introduction clips where the interviewee elaborates on who they are, what they do and their background are essential. These additions will be very helpful for future users of the materials as it offers the full picture, not just edited segments.

The usual process for creators of television series is driven by the creative autonomy of the makers. In that scenario, the choice to use something or not is based mostly on creative preferences, combined of course with financial restraints. When producing for open publication, a great deal of discipline is required from everyone involved, especially in relation to the inclusion of existing creative works within the video production. For example, framing a shot so that a painting on the wall is not prominently featured and using music that's available under an open license or can be freely reused in a work that will be openly distributed are examples of a required attention to detail.

In the case of The Mind of the Universe, additional time was needed to make so-called "clean edits" of the interviews. This additional work was not initially budgeted.

CONTRACTS AND AGREEMENTS

There were numerous components of the project that required arrangements with the people involved in their creation to enable open publication:

Footage

Foreign camera crews were asked to transfer all the rights of the recorded material to VPRO. This is common practice for broadcasters working with international crews, but in the case of open publication an absolute requirement.

 The interviewees were approached via email. No contracts were signed, but the scientists were informed about the "free distribution" of the material and that "the material could be used by everyone as they see fit".

Music

For editors at VPRO, their normal routine is to edit with music they feel works well and for which a license can be obtained. In the case of *The Mind of the Universe* there were more restrictions, to enable future open publication. As such, VPRO decided to have 24 pieces of music composed and recorded specifically for the series. The individual pieces were delivered as separate tracks that could be played at both 80 and 100 bpm. With these recordings, a database of diverse music was created from which editors could draw.

Translation

The people interviewed for *The Mind of the Universe* were of various nationalities and some were interviewed in their mother tongue. Transcripts of the interviews were created, either by outsourcing this activity to a translator or through deploying state of the art speech-to-text technology.[6] Where necessary, translations had to be made based on the transcripts for editors to be able to do their work. Although these translated transcripts did not have many errors there were some grave mistakes due in part to the use of names and jargon in the interviews, and also occasionally because of the speakers' accents. These translations were then edited to be used in subtitles for the final version of the series that was broadcast, but also for the raw material of the interviews.

PRODUCTION RECOMMENDATIONS:

- Whilst planning, try to run through the entire production process from start to finish for the various distribution channels you have in mind. By doing so, resources can be allocated more effectively. E.g. translation can be done just once for all outlets, same goes for annotation, adding metadata, etc.

- Work with music produced specifically for the openly publishable production, or with openly licensed music that can be found on platforms such as Jamendo and Tribe of Noise. Even when a copyright holder gives you permission to use their music in your production, automated copyright detection systems, such as YouTube's content ID system, might still flag the content as copyrighted.

- It is important to verify that contracts with all parties involved state that the rights are transferred to the publishing organisation. In exceptional cases, producers/directors are members of rights organisations (e.g. VEVAM in the Netherlands) that ensures compensation when their productions are distributed via other platforms. These agreements can be at odds with the notion of open publication and should be avoided.

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6 VPRO used Voicebase: https://www.voicebase.com/

4. Publication

The Mind of the Universe was published over four channels:

1. Terrestrial television: The 10 episodes of *The Mind of the Universe* were aired between May and July 2017. On average these episodes received 400,000 viewers (a 5% market share).

2. Complete episodes were uploaded to YouTube[7] for international viewers, resulting in roughly 50,000 views as of March 2018.

3. The Mind of the Universe: Open Source Science TV[8]: This platform, co-developed by Sound and Vision, offers access to the the raw materials (over 30 hours of footage) and allows this corpus to be searched through and downloaded.

4. Open Images and Wikimedia Commons: The raw footage of the interviews and the B-roll were uploaded to the open video platform Open Images.[9] Using the Open Images API and the GlamWiki Toolset[10] the videos and their metadata were uploaded to Wikimedia Commons.[11] On this media repository editors of Wikipedia find resources to enrich and edit Wiki pages.

Specifically for the platforms mentioned under point 3 and 4, a number of actions were taken to prepare for online, open distribution:

1. IMPROVING DISCOVERABILITY

Publishing materials for reuse by third parties in an efficient way depends largely on the discoverability of the material for users that are unfamiliar with the contents of the project. VPRO and Sound and Vision went to great lengths to enable users to effectively search through the raw material:

• The videos were segmented: each question and answer together formed a single segment.

• Using open source video annotation software developed by Sound and Vision, VPRO tagged both the full videos and the segments. Initially the idea was to have the community (including Wikimedians) add tags, but during the process VPRO felt it would be a waste to not use the knowledge of the directors and researchers who had done much of the research for the series. Time was allocated to one of the researchers to add tags to the interviews.

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7 All the episodes of The Mind of the Universe can be found *here*.

8 http://themindoftheuniverse.org/

9 https://openimages.eu/.en is an initiative by Sound and Vision. As an open media platform it offers online access to audiovisual (archive) material to stimulate creative reuse.

10 https://www.mediawiki.org/wiki/Help:Extension:GWToolset

11 https://commons.wikimedia.org/wiki/Category:Media_from_the_Mind_of_the_Universe

- The tags that were added are mostly terms from the UNESCO thesaurus.[12] This makes it easier to link to other knowledge sources. Also, custom tags could be added as non-structured text.

- Where possible speech-to-text technology was used to transcribe the interviews. In other cases the translations were outsourced and added to the interviews as transcriptions.

- Categories were added to the material on Wikimedia Commons.

2. FILE FORMATS AND QUALITY

There were several considerations with regards to the quality of material available for download. The material had to be of sufficient quality to be used in an educational setting, should be easily downloadable and broadly supported by various players. However, the content did not have to be of sufficient quality to support professional broadcasting. An HD (1920x1080 px) H264 format was chosen for download on The Mind of the Universe's own platform. For Wikimedia Commons the Ogg Theora format was chosen to comply with Wikimedia's requirements of non-proprietary formats.

INTERNATIONAL RESTRICTIONS

It is important to realise that open publication does not necessarily mean free distribution. Distributing materials openly, especially in a broadcasting context comes with its own challenges. The VPRO tried to get *The Mind of the Universe* aired in certain African countries. In these particular countries however, one needs to pay in order to get something broadcasted. Also, international distribution requires working with distributors who are looking to make a profit themselves. Publication on, say, YouTube will be a hindrance to working with such distributors since the content is already widely available to their potential audience.

PUBLICATION RECOMMENDATIONS

- Make searching through the openly published material as easy as possible. Use available tools to transcribe and tag the video segments to provide granular entries into the corpus.

- Publish open source (non-proprietary) file formats for open publication.

- If the ambition is to get material broadcasted in other countries, take into account the requirements of the distribution system (and practices) that are in place there.

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12 http://vocabularies.unesco.org/browser/thesaurus/en/

Licenses

For the publication of material, various licenses are available, the most common of which are the *Creative Commons licenses*. Through these licenses, copyright holders can license third parties to use their materials under certain conditions. There are a few options:

- No rights reserved (CC0)
- Attribution (CC BY)
- Attribution Share Alike (CC BY-SA)

Only these first two enable publication on the Wikimedia platforms, including Wikipedia. The following licenses come with more restrictions:

- Attribution No Derivatives (CC BY-ND)
- Attribution Non-Commercial (CC BY-NC)
- Attribution Non-Commercial Share Alike (CC BY-NC-SA)
- Attribution Non-Commercial No Derivatives (CC BY-NC-ND)
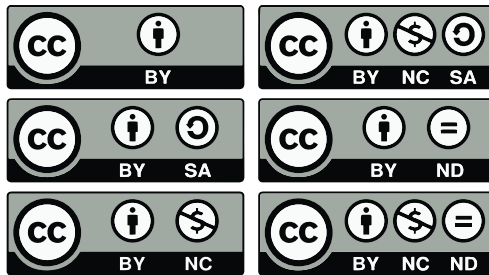
5. Post-Publication

The traditional broadcasting context (production, marketing and financing), is structured towards the moment of airing. After this, very few resources are allocated to follow-up, e.g. continuing to promote the material during relevant events, or long-term community engagement. In the case of open publication, finishing the product can be seen as (only) the start of an "afterlife" for the materials for which additional resources and time are needed.

PROMOTING THE MATERIAL FOR EDUCATIONAL USE

Through the partnership with UNESCO, VPRO has built a network of knowledge institutions around the themes discussed in The Mind of the Universe. Only a few months after the series aired this has already resulted in collaboration with three universities (Leiden University, TU Delft and Erasmus University Rotterdam) that created Online Learning Experiences for an international audience of potentially 5 million students. The universities developed these learning modules as "experiences", not as traditional courses, to help students critically engage with the cutting edge of various scientific topics, also exposing them to some of the ethical dilemmas related to the scientific topics discussed in The Mind of the Universe. These learning experiences will be launched at the Open Education Global Conference on April 25, 2018.

EDITATHONS AND REUSE OF MATERIALS ON WIKIPEDIA

One of the big potential benefits of open publication is the use of content on Wikipedia. Open publication complies with the vision of Wikimedia: "a world in which every single human being can freely share in the sum of all knowledge." Wikipedia, the online encyclopedia, maintained by volunteers from all over the world, is the fifth most visited website worldwide. As a source of information it is unrivaled in its breadth, covering almost every thinkable topic.

Segments of videos from *The Mind of the Universe* can now be found in various biographic articles from the participating scientists, across multiple language versions of Wikipedia.

This Portuguese Wikipedia Article on Jennifer Tour Chayes, Affiliate Professor of Mathematics and Physics at the University of Washington, is illustrated with a video from *The Mind of the Universe.*

The interview with Sara Seager, taken from *The Mind of the Universe* features in the Wikipedia Article on the astronomer.

So-called "editathons" over the past years have proven to be a way of engaging with the Wikimedia community at a physical location to improve existing Wikipedia articles around a certain topic, create new articles or add pictures, video, audio and illustrations to existing articles. For example, within the project Europeana Fashion twelve editathons were organised, resulting in over 50 new, and 200 expanded articles.[13] Several attempts were made at organising an editathon around the themes and materials of *The Mind of the Universe* in the Netherlands. Despite these efforts, not enough interest was generated. We see several reasons for this:

- **The subject matter of the series:** the scientists whose work was presented in the series are performing research at the cutting edge of their fields. There is a level of abstraction that comes with this that makes it hard to translate into a comprehensible encyclopedic article for a wide audience. It proved challenging to find participants for the editathons who were both interested in and capable of making that translation.

- **The nature of the videos:** videos with interviews are relatively rare on Wikimedia Commons, we therefore had no "best practices" for the use of interviews in the online encyclopedia to fall back on. In practice we have seen the interviews used only as illustrations in the articles of the scientists themselves, not in articles on the topics that are being discussed in the interviews.

- **The type of content:** Wikipedia has a "No Original Research policy"[14] in place. The encyclopedia is a tertiary source that references secondary sources to substantiate the facts that it states. The subject matter discussed in the video's is cutting edge and in some places speculative, not mentioning sources or publications. This, combined with the fact that video and audio materials are rarely used as references on the encyclopedia, made for a rather narrow application of these materials on Wikipedia.

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13 Also resulting in a manual with best practices for the organisation of editathons,
   which can be found here: https://pro.europeana.eu/post/a-guide-to-editing-fashion-on-wikipedia

14 Ahttps://en.wikipedia.org/wiki/Wikipedia:No_original_research

The case of Polygoon newsreels and the Foundation of Nature Footage on Wikimedia projects

In light of the reflections above we would like to share some insights from projects that have been more successful in seeing video material reused on Wikipedia. In 2009 Sound and Vision launched the platform Open Images[15] on which videos from its archival collection were published openly, in various formats, with relating metadata. From the very start the Wikimedia community picked up on these materials on the platform. To date, more than 4,200 articles on various language versions of Wikipedia have been enriched with videos from this collection. These articles combined receive more than 5 million monthly views.

From 2010 onwards, Sound and Vision participated in the Foundation for Nature Footage,[16] which produced a series of unedited videos of Dutch nature. So far, these videos have been used on over 500 pages, which on average generate over half a million views per month.

Some ways in which these collections differ from the material of *The Mind of the Universe* are:
- Accessible subject matter,
- Well demarcated subject matter, especially in the case of the nature videos,
- More or less objective display of various behaviours, landscapes, locations, historical events, technologies, customs, species, etc. that have a one-on-one relation to existing Wikipedia articles.

15 https://openimages.eu

16 http://natuurbeelden.nl

Some organisations have taken an extra step in reaching out to the Wikimedia community by employing a "Wikipedian in Residence".[17] These experienced editors of the Wikimedia platforms can help upload content, start community projects and promote the topics of interest to the host organisation.

POST-PUBLICATION RECOMMENDATIONS

- Budget for long-term follow-up. Additional time and resources are required for editorial activities, adding metadata, building and maintaining a functioning platform for the distribution of the materials and social media activities. For national broadcasters, promoting their publications internationally might require different approaches and knowledge.

- Actively encourage reuse through community engagement, promote the materials on various platforms, be available for questions, team up with educational platforms, etc.

- If reuse on the Wikimedia projects is among your goals, try to involve people from those projects early on to understand their values, level of expertise and needs.

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17 https://outreach.wikimedia.org/wiki/Wikipedian_in_Residence

6. Evaluating Open Publication

The choice to publish materials openly using CC licenses can be seen as a choice on principal. Why *wouldn't* materials created with public financing and with a public cause in mind be published openly? Still, evaluating the impact of open publication is important. Can we determine how many people are reached with the material? What new things were created? How is the original material enriched and contextualised?

TRACKING REUSE

One of the major challenges of publishing materials openly is tracking their reuse. Important work is being done by projects such as CADEAH[18] and MediaDNA,[19] using video fingerprinting to track video on various places on the internet. These efforts as of yet don't offer off the shelf solutions for this problem, but in the future this could provide important information.

A more accessible approach until then is simply to track the number of downloads from the platforms mentioned above. Additionally, one can ask about the purpose for the download through a form. However, in the case of *The Mind of the Universe* these forms are often left empty, or the given reason for download is "for personal use" without further specification.

MONITORING REUSE ON WIKIMEDIA

Since all media used on Wikimedia projects is hosted on Wikimedia Commons, the central media repository, monitoring reuse on the Wikimedia projects is much simpler. Tools have been developed to monitor use and reach of materials within these projects:

Baglama 2:[20] This tool monitors the number of views articles on Wikipedia get in which items from a certain category have been used. The articles on which videos from *The Mind of the Universe* were used receive well over 16,000 monthly views on average.

Glamorous 2:[21] This tool generates use statistics across various Wikimedia projects of items in a certain category. In march 2018, 17 articles across various language versions of Wikipedia make use of material from The Mind of the Universe.

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18 https://www.c2dh.uni.lu/de/news/european-research-grant-european-history-reloaded

19 https://www.beeldengeluid.nl/en/knowledge/projects/mediadna

20 https://tools.wmflabs.org/glamtools/baglama2

21 https://tools.wmflabs.org/glamtools/glamorous/

CONTEXTUALISATION

The above-mentioned metrics schemes are quantitative approaches to the evaluation of the impact of content. A more qualitative look at specific cases of reuse could also take place. Here we are interested in how the original material has been used in the context of other forms of information. Again, the use-case of Wikipedia is an obvious one, as well as the educational programmes in which materials can be used. But what about new television productions in which value is added to the original material by providing new, or different kinds of information? Which new, perhaps unexpected audiences have been reached with the content?

EVALUATION RECOMMENDATIONS

- Track the reuse of materials, not only in quantitative terms, but also highlight individual reuse scenarios to better understand the way in which audiences engage with the materials published.

- Tracking and evaluating needs to be repeated over time to learn about the ways in which the internet's so called "long tail" functions for openly published video materials online.

7. Recommendations and Conclusions

RECOMMENDATIONS FOR BROADCASTERS

To enable open publication and maximise impact seek collaboration with partner institutions in the pre-production stage. This will pay off in the later stages. During production, be disciplined in the choices you make for contracts, music and other content, to avoid hindrances for open publication at a later stage. Be innovative in using available technologies such as video annotation and speech recognition, to enable future users to search through the material and find what is relevant to them. Finally, budget for long-term promotion and community engagement around the material.

Through open publication, public broadcasters can team up with a wider movement and increase their impact. The afterlife of video in the commons connects broadcasters to unexpected audiences and can lead to surprising uses of material.

RECOMMENDATIONS FOR THE WIKIMEDIA COMMUNITY

Although the majority of this paper has focused on public broadcasters, there are a few recommendations that could possibly help the community of editors on Wikimedia projects to profit more from projects such as The Mind of the Universe. As briefly argued above, but more extensively in Kaufman's white paper, online video is changing the way in which knowledge is produced and consumed. For an online encyclopedia like Wikipedia, it would make sense to incorporate video more fundamentally at various levels:

- As illustrations to articles that discuss various behaviours, landscapes, locations, historical events, technologies, customs, species, etc. Such video material can be produced by amateur filmers within the community in projects similar to WikiLovesMonuments, or the community can actively engage with new communities of (professional) filmers to make their needs and wishes known.

- To enable editors of articles to find the right video material will require more than just adding categories on Wikimedia Commons. Searching through the content of the videos can be made possible by incorporating state of the art tools, for example for video annotation and speech recognition.

- An article, or summary of an article could be presented as a video compiled of various sources (video, audio, illustrations, etc.). By doing so the encyclopedia would be made more accessible to a less literate audience and more attractive to young people increasingly used to digesting AV information. The excellent image quality of consumer video cameras combined with open source video editors such as *Shortcut* and *Open Shot* can make creating such videos accessible to most people.

- As a source of reference to claims made in articles. This would require the development of standards for referencing videos, and more community consensus on what requirements there are for videos to serve as a reference.

CONCLUSIONS

Open publication can seem a somewhat daunting prospect to broadcasters at first. For example, iIt takes away potential income from sales of the material to third parties. One might also feel at risk of publishing something that isn't really theirs. VPRO however felt that as a public broadcaster, especially where educational purposes are served, making materials as widely available as possible is part of their mission. This is where their mission overlaps with educators, cultural institutions and also the Wikimedia movement. In the case of The Mind of the Universe, the open publication so far has led to use of the material on Wikipedia. Despite not (yet) being used to the extent that we perhaps had hoped for (for reasons described above), these articles give thousands of people each month access to the material in the context of encyclopedic articles. Open publication also led to the creation of an online learning experience which will potentially serve millions of students around the world. Instead of laying on the shelves somewhere catching dust, the videos from *The Mind of the Universe* have been given a second life in the commons.

**Publication of Public Broadcasting Content in the
Commons - A Practitioners' Statement**

SOUND AND VISION