

First Bachelor Thesis

Open Source Film

A model for our future?

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- I have made no use of sources, materials or assistance other than those which have been openly and fully acknowledged in the text. If any part of another person's work has been quoted, this either appears in inverted commas or (if beyond a few lines) is indented.
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- I understand that any breach of the fair practice regulations may result in a mark of zero for this research paper and that it could also involve other repercussions.
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Abstract

Open source films, which are movies produced and published using open source methods, became increasingly widespread over the past few years.

The purpose of my bachelor thesis is to explore the young history of open source filmmaking, its functionality and the simple distribution of such movies. Two recent open source film projects "Elephants Dream" and "A Swarm of Angels" will provide further information on the topic.

After weighing the advantages and disadvantages, a prognosis whether open source films will have a future or not can be provided.

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1. What is open source?

Before writing about open source film, it is essential to define what open source actually is and how it works.

Open source is transparent. The source code itself is viewable and available to study and comprehend. The code can be changed and then redistributed to share the changes and improvements. It can be executed for any purpose without discrimination. Its process of development is largely open, with the evolution of free and open systems typically preserved in repositories accessible via the Internet, including archives of debates on the design and implementation of the systems and the opinions of observers about proposed changes. (Deek/McHugh 2008, p. 1)

The official open source definition states that the distribution of open source software must comply with following criteria:

1. Free Redistribution

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

2. Source Code

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.

3. Derived Works

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

4. Integrity of The Author's Source Code

The license may restrict source-code from being distributed in modified form *only* if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

5. No Discrimination Against Persons or Groups

The license must not discriminate against any person or group of persons.

6. No Discrimination Against Fields of Endeavor

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

7. Distribution of License

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

8. License Must Not Be Specific to a Product

The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

9. License Must Not Restrict Other Software

The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

10. License Must Be Technology-Neutral

No provision of the license may be predicted on any individual technology or style of interfaces.

(cf. Open Source Initiative, no date, no page)

As for advantages of open source products, the most obvious and appealing one is that they are usually free of direct cost. That does not automatically mean that open source software is of poor quality though, since the products may arguably be both more secure and more reliable than systems developed in a proprietary environment. (cf. Deek/McHugh 2008, p.3)

2. Open source film

2.1. Concept

Open source film has been gaining more and more popularity over the past few years, however the majority of people is not familiar with the meaning of this term. The following section is intended to give an overview of the functionality of open source films and provide deeper insight into the two open source film projects *Elephants Dream* and *A Swarm of Angels*.

Don Tapscott, a Canadian business executive, author and one of the world's leading authority on business strategy, held a speech about his view of the film industry's future at the Berlinale Keynotes 2008.

Due to some very profound changes that are taking place in technology, in demographics – a new generation of young people – in society with a social revolution based on social networking and in the economy new models of the corporation that are emerging, I'm convinced that we're moving into a Cinema 2.0. (Tapscott 2008, Berlinale Keynotes)

Web 2.0 made it possible for collaborative projects like Wikipedia, Linux or Firefox to be successful, so why not produce movies in a similar manner? Open source film is a new, innovative way to develop short, or even feature length films. Dedicated internet communities have the opportunity to participate in a film project from start to finish – from developing an idea until the movie is finalized. A perfect example for this kind of process is Matt Hanson's open source project *A Swarm of Angels*, which will be discussed later in this thesis. (cf. Fritsch / Wagner 2009)

According to Don Tapscott it is necessary for the film industry to rethink their filmmaking strategies in order to be profitable. Today's youth has been surrounded by interactive media all their lives, so they prefer to actually participate in a story rather than just sit and watch. This is the reason why there is a growth in video game sales, whereas DVD sales are declining.

These kids are different. [...] They want freedom – choice is like oxygen. When I was a kid, I had three media choices, these kids have thousands of choices, they want to customize everything. [...] Industry after industry doesn't understand that. [...] It's a generation that wants to collaborate and have relationships. It's a generation that wants to have fun. (Tapscott 2008, Berlinale Keynotes)

So in Don Tapscott's opinion, the key is to combine both interactive media, for example video games, and film to create a new way of filmmaking which will more likely succeed in the future. This does not mean that films produced in a traditional manner will disappear, but the film industry definitely needs to open up toward new options.

2.2. Software

Since open source films usually have a very limited budget, it is important to keep production costs as low as possible. Using open source software not only helps achieving that, but it also supports the whole concept of open source film production. It is not always necessary to purchase expensive software to make a movie, since plenty of open source applications have similar functions as proprietary ones. “The open source phenomenon has led to the creation of free, open software products that can compete with proprietary products on the market.” (Muffatto 2006, p. 18)

To give an example, all the animations in the short film *Elephants Dream* were created with “Blender”, a free 3D computer graphics application.

2.3. Distribution

Open source films are distributed using open source methods and are thus freely available to the audience. The license that makes this possible is called “Creative Commons”, which I would like to illustrate in the next chapter. In many cases the core production team provides their raw material for free, so that anyone has the opportunity to remix the footage and thus create a new storyline. The new, remixed film can again be published under the Creative Commons license, as long as the original work is mentioned in the credits.

2.4. Financing

Open source films are usually funded with the help of sponsors and/or donations. A part of the budget can also be earned with DVD and merchandising sales. However, since making profit is not a goal of the open source model, it is only essential to cover expenses caused by software, hiring a core team, etc.

There is another possibility for which Matt Hanson's project *A Swarm of Angels* is a perfect example. People who wish to be part of production contribute £25 and are thus fully integrated in the process of developing a feature length film worth £1 000 000. It is a win-win situation because it helps to prepare a budget and it also provides people all around the world the opportunity to participate in a huge, innovative project.

Chapter five will provide more detailed information on *A Swarm of Angels*.

2.5. List of open source films

- Dancing to Architecture – a motion picture about TINA (Documentary, 2002)
- Road 66 (Road movie/gonzo documentary, 2004)
- Elephants Dream (Animated short, 2006)
- .re_potemkin (Contemporary art project, 2007)
- Big Buck Bunny (Animated short, 2008)
- Jathia's Wager (Short film, 2009)
- Sita Sings the Blues (Animated musical, 2009)
- Valkaama (Full feature, 2010)
- The Digital Tipping Point (Documentary, in production)
- The Last Drug (Full feature, in production)
- Sintel (Animated short, in production)





(cf. Wikipedia, 2010, no page)

3. Creative Commons

3.1. Concept

Creative Commons is a non-profit organization founded by Lawrence Lessing in 2001, which provides web space where creative work can be placed, shared and legally built on by others. They offer a variety of licenses free for public use, especially for creative work like websites, music, film, photography, literature, courseware, etc. There are four different license conditions which can be combined in several ways, so users can easily choose a license which best suits their needs. (cf. Muffatto 2006, p. 221)

3.2. License conditions

 Attribution by	 Share Alike sa	 Non-Commercial nc	 No Derivative Works nd
You let others copy, distribute, display, and perform your copyrighted work — and derivative works based upon it — but only if they give credit the way you request.	You allow others to distribute derivative works only under a license identical to the license that governs your work.	You let others copy, distribute, display, and perform your work — and derivative works based upon it — but for non-commercial purposes only.	You let others copy, distribute, display, and perform only verbatim copies of your work, not derivative works based upon it.

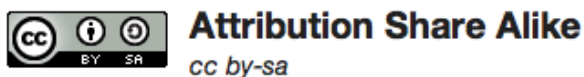
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Creative people who wish to protect their work with Creative Commons are offered following licenses:



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This license is the most restrictive of our six main licenses, allowing redistribution. This license is often called the “free advertising” license because it allows others to download your works and share them with others as long as they mention you and link back to you, but they can't change them in any way or use them commercially.

(Creative Commons licenses, no date, no page)

When choosing the most suitable license for one's work, it should not be forgotten that although each license is combined with certain restrictions, every one of them allows others to copy the work, distribute it, display or perform it publicly, make digital public performances of it and change the format of the work.

That leads to the conclusion that whereas copyright guarantees “all rights reserved”, and Public Domain “no rights reserved”, Creative Commons Public Licenses offer “some rights reserved”.

That way, the work is available to everyone, but the author retains certain rights. In any case, the author of the original work must be given credit at some point. The main idea behind the concept of Creative Commons is to provide an opportunity for creative people to share their work and allow it to be remixed by others as long as they respect the original. (cf. Muffatto 2006, p. 221-223)

3.4. Logo

The Creative Commons logo is a double “c” in a circle – referring to copyright’s single “c” in a circle.



(Creative Commons, Downloads, no date, no page)

3.5. Financing

Creative Commons is a non-profit organization which is dependent on its users’ support. Financial contributions can be made by donating money or shopping in the Creative Commons store, however spreading the word or composing testimonials on their website are also a way to keep the organization alive. (cf. Creative Commons, Support Creative Commons, no date, no page)
In 2009, 410 individual donors supported Creative Commons with a total of \$503,384.14. This year, donations already amount to \$621,329.31 by 502 supporters, which clearly speaks for the popularity of Creative Commons. (cf. Creative Commons, Facts and Figures, no date, no page)

4. Elephants Dream

4.1. The movie

Elephants Dream was the world's first open source movie and was released in March 2006. The project was initiated by a core team of six people from the Blender foundation who worked together on creating an animated short movie, mainly using their company's open source 3D graphics software "Blender". It took them almost a year until the film was released under a Creative Commons license. (cf. *Elephants Dream, Background*, no date, no page)

Elephants Dream tells the story about two men, Proog and Emo, who live in a surreal location called "The Machine". While Proog sees it as a beautiful, exciting place, to Emo it is just plain and boring. During a journey, Proog tries to convince him of their home's beauty but Emo is unable to see it. In the end, Proog gets frustrated and hits him, which leads to Emo's death.

4.2. Software

Elephants Dream was almost entirely created with open source software, such as the free graphics program Blender. Only the sound was produced by proprietary software Reaktor, which actually contradicts the open source concept to some extent. However, the fact that all the footage used for the movie – about 7 Gigabytes of data – is included on the DVD set or can be downloaded from www.elephantsdream.org and is thus made available for remixing, makes it fit into the concept of open source film.

- Software used for *Elephants Dream*:
- Blender (3D computer graphics)
- DrQueue (Rendering)
- Inkscape (Vektor graphics editor)
- Seashore (Raster graphics editor)
- Twisted (Event-driven networking)
- CinePaint (Graphics)
- GIMP (Raster graphics editor)
- Reaktor (Audio; proprietary)
- Subversion (Revision control)
- Ubuntu (GNOME and KDE desktop; operating system)

(cf. *Elephants Dream, Credits*, no date, no page)

4.2.1. Blender

„Blender is the free open source 3D content creation suite, available for all major operating systems under the GNU General Public License.“ (Blender Foundation 2008, no page)

- Blender features many essential graphic tools and can be used for:
- Modelling
- Rigging
- Rendering
- Animation
- UV Unwrapping
- Shading
- Physics and Particles
- Imaging and Compositing
- Realtime 3D/Game Creation

(cf. Blender Foundation features 2008, no page)

“Blender is similar to other high-end 3D software packages” (cf. Mullen/Rosendaal 2007, p. 3), so it is the proof that open source software can keep up with proprietary 3D graphics applications, such as Adobe After Effects etc.

After *Elephants Dream*, the Blender Foundation initiated two other projects – *Big Buck Bunny* (2007) and *Yo Frankie!* (2008) – to improve the software's functions. Both movies were released under the Creative Commons license as well.

4.3. Financing

Elephants Dream is a co-production of Montevideo and Blender Foundation, both sharing financial responsibility on equal basis. The budget of 120000€ was provided by generous sponsors such as The Netherlands Film Fund, Mondriaan Foundation, VSBfonds and Uni-Verse / EU Sixth Framework Programme. (cf. *Elephants Dream*, Credits, no date, no page)

A part of financing is also based on pre-sale of the extended DVD edition of *Elephants Dream*, which could be purchased on the official website in the past, but is not available anymore.

4.4. Motivation

With Blender being the main software and one of the financiers of *Elephants Dream*, one of the goals was to improve the program's functionalities. Also, the initiators of the short film wanted to create something that has never been done before and see if there is a future for such projects. (cf. *Elephants Dream*, Background, no date, no page)

4.5. Distribution

Following files of *Elephants Dream* are available for download on the official website www.elephantsdream.org:

- the movie itself in several formats, more precisely in AVI, MPEG4/AC3, QuickTime and H.264/AAC stereo
- making of documentary
- movie with commentary tracks
- final script
- final script in 37 translations
- production files
- 16 high quality images
- soundtrack
- soundtrack cover image
- production photos

In addition, all the video files can also be streamed via YouTube or Vimeo. Originally it was possible to purchase *Elephants Dream* on DVD, but as mentioned above it is not available anymore. (cf. *Elephants Dream*, Download and watch, no date, no page)

5. A Swarm of Angels

5.1. The movie

A Swarm of Angels refers to an open source film project initiated by writer, filmmaker and producer Matt Hanson in January 2006, and the internet community which participates in the process of making the film.

It is a „peer-production“ (cf. Cassarino/Richter 2008, p. 2), which aims to get 50 000 so called „angels“ – referring to the members of the project – to participate in this experiment. Matt Hanson's idea is to create a new, future-oriented model of filmmaking: “Cinema 2.0”, as he puts it.

As an award-winning filmmaker and accomplished writer, the traditional development and feature filmmaking route feels too odd for me based on my previous work and history as a ‘film futurist’. This project is a short cut for me to make a feature film, but also a way to redefine filmmaking methods, and legitimize a whole new model of making ‘bigger media’ that would work for a new generation of content creators. (A Swarm of Angels FAQ, no date, no page)

Anybody around the world can sign up to be part of the swarm - “from industry professionals, digital creators, writers and artists, to film fans, students, and those who simply want to support an innovative project.” (A Swarm of Angels FAQ, no date, no page)

What makes the project appealing to most of its members is probably the fact, that for only £25 they can be part of a major film production, which is not only innovative, but also global.

Of course, thousands of members working on one movie is very likely to result in chaos. Therefore, a leader is needed, who actually is initiator Matt Hanson, referring to himself as a “benevolent dictator”. He is the one to coordinate the swarm and create online polls, so that members can easily vote whenever there is a decision to make. In the past, there were polls about management issues, the project's timeline, profits, versions of script, etc. The use of polls is a fair way to deal with decisions concerning the project, since each vote counts as one – even Matt Hanson's. In other words, even though he is in authority and thus has veto power, he does not use it, as it would contradict the motive of the project. (cf. Cassarino/Richter 2008, p. 6)

5.2. Stages

In order to realize a futuristic film project like *A Swarm of Angels*, a lot of organization is necessary. To give a telling, yet simple overview of what needs to be achieved to reach the goal of releasing a feature length open source film, Matt Hanson divided the stages as follows:

1. **FUND** the project. Call for collaborators. Publicize and create marketing materials. Gather the first 1000 members through targeting niche online communities and parts of the blogosphere. Develop the project and infrastructure. Start script development. Open the project up to more members.

2. FILM. Collaborate. Develop scripts using a 'wiki'. Crew through The Swarm. Funding drive for pre-production/production/post-production. Create marketing and final materials.

3. FLOW. Master materials. Create spin-off materials. Publicize. Burn. Upload. Seed. Download. View. Remix. Share.

(A Swarm of Angels FAQ, no date, no page)



(A Swarm of Angels, Process, no date, no page)

5.3. The script

In an interview, Matt Hanson explained the development of the script as follows: “I write the draft script in a very open way, the community's feedback influences the direction of the story. Later, I publish it in a Wiki, so that each member can add to it, however in a moderated way, so it's still controlled.” (cf. Fritsch / Wagner 2009)

There are currently two scripts: “The Unfold” and “The Ravages”. The community is constantly participating in polls and wikis to decide where the story is going. “The Ravages” was formally known as “The Glitch”, which Matt Hanson expected to be developed in a highly collaborative way. “The Ravages”, on the other hand, was intended to rather follow traditional scriptwriting. Ultimately, only one script is going to be produced by the swarm. (cf. Cassarino/Richter 2008, p. 16)

Script development is actually still in progress, however the official website of *A Swarm of Angels* <http://aswarmofangels.com/> has been offline since February 2009 due to a transformation. (cf. Twitter 2009, no page)

5.4. Financing

The aim of Matt Hanson and his team is to produce a feature length film worth £1 000 000. In order to achieve that, each user who wishes to sign up to be an “angel” and thus participate in developing the film, has to contribute a membership fee of £25. Consequently, at least 50 000 members are needed to accomplish the financing as planned. (cf. Fritsch / Wagner 2009)

The fee of £25 also guarantees more or less that only serious participants sign up to join the swarm. That way, the quality of the final movie is more likely to be satisfying. (cf. Cassarino/Richter 2008, p. 11)

In contrast to *Elephants Dream*, *A Swarm of Angels* is not dependent on investors or foundations.

The money for ASOA is not provided by investors, who expect a return, but by creators, who expect to gain freedom of creation and warrant artistic independence. The small amount requested as a minimum contribution is supposed to avoid the problem of centralized control, instead of reproducing it at a large scale. Everybody has the right to have a say in every decision because of the money put in, and nobody has the formal entitlement to prevail. (Cassarino/Richter 2008, p.11)

5.5. Status quo

As mentioned above, the website of *A Swarm of Angels* has been inactive for more than a year and now redirects visitors to its official twitter account. Short status updates are given through the microblog from time to time, but it seems as if the project is stuck in a crisis.

It was not always like that. Matt Hanson was the first subscriber on 16 January 2006 and the following two years were quite successful. The first milestone of 100 members was reached on 6 May 2006 and the second milestone of 1000 members a year later, on 7 July, 2007. In March 2008 number of members was around 1360. (cf. Cassarino/Richter 2008, p. 5) Since the website was taken down only eleven months later, it is unlikely that the swarm counts more than 2000 members, which means that at the moment, the goal of reaching 50 000 members seems impossible.

On twitter, it was announced that the film's official launch would be in early 2010, but nothing happened. (cf. Twitter 2009, no page) Nevertheless, there is still a chance of the project to be finalized someday. Four years ago, Matt Hanson started something that has never been done before, so it is understandable that unpredictable struggles slow down the process.

6. Conclusion and outlook

Making movies is always a collaborative process – director, producers, writers, cameramen etc. are all part of production. However, open source film takes the idea of collaboration to a whole new level.

Traditional methods of moviemaking are certainly not dead and will probably prevail the industry for a long time, but it is important to stay up to date and come up with new ideas and methods – especially in times of piracy and the internet taking over television. Due to video-sharing websites like YouTube or Vimeo, it is almost impossible to keep people from watching and distributing films illegally. Anybody can up- or download media, whether they own rights for it or not. Of course the film industry looks for copyright infringements on the internet and eliminates illegal content, but it is simply impossible to control the amount of material that is available today.

According to director and head of *A Swarm of Angels*, Matt Hanson, the key is to adapt to new tendencies.

I'm not alone in believing you can't control media these days. You need to go with it, rather than fight it. We're part of the remix generation, with the DIY [note: "do it yourself"] digital tools to make our own digital media, whether that's film, music, or whatever.

I think building a feature film from the ground up to be ready for remixing, easy to view, ready to share, and perfect for download, is the way to go. This is the way to invent the future of film... (A Swarm of Angels FAQ, no date, no page)

Don Tapscott shared a similar thought at the Berlinale Keynotes 2008. According to him, there is a new way of collaboration:

[...] of the viewer becoming a user, of crowds taking place in everything having to do with how you get the funding for a film, how you put a film together, how you write a script, how you work straight capability to make a film, how you distribute a film, how you market a film. Basically the entire supply chain in the industry. (Tapscott 2008, Berlinale Keynotes)

Certainly, they both have a point in saying that the film industry has to rethink its strategy. Open source film might be an approach for a "revolution", however, the struggles that *A Swarm of Angels* is having is a proof for how risky the business is. Of course, there are successful projects as well, but in general, the main problem is probably that not enough people are aware of what open source film is yet. As it is a rather new movement, it might gain more popularity in the next few years, but it is unlikely to take over the film industry.

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