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Swarm creativity. The legal and organizational challenges of open content film production

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Swarm Creativity - The Legal and Organizational Challenges of Open Content Film Production

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Abstract

While the creation of software under the FLOSS paradigm is a well-established and recognized mode of production, the peer collaborative production of Open Content Film is a fairly new phenomenon. The two approaches share several common features: both are characterized by the massive collaboration of actors in a shared creative space and both are enabled by Information and Communication Technologies, in particular the Internet. But technology itself is not sufficient to create and maintain a shared creative space. A governance structure resting on a legal framework and a set of control and incentive mechanisms regulates the transactions between the collaborators and is designed to ensure coordination.

In this paper we will outline the legal and organizational challenges faced by the first major Open Content Film production 'A Swarm of Angels' (ASOA) in creating and maintaining a shared space for collaborative film making. We will pay particular attention to the differences with the practices of the FLOSS community. The study will be based on a series of interviews with ASOA founder Matt Hanson and the major contributors to his project, the analysis of the discussion threads about the appropriate organizational and legal structure for this Open Film project, taken from the community's online discussion forum, and the available legal documents governing membership in the 'Swarm'.

The discussion of the legal and organizational aspects is pivotal in the debate about whether a peer collaborative production model could be applied to other industries than software production, in particular to industries which involve not purely informational goods and hence rely on significant funding. The technology seems to be ready. The governance capabilities to take advantage of it maybe not.

Keywords: Distributed Problem Solving, Collaborative Creation of Art, User-centred Innovation, Creative Commons, FLOSS, Intellectual Property law, Open Source Cinema, Open Content Film production.

Chapter 1. Introduction

Distributed collaborative creation has already proven to be an effective means of production, so far mainly in the field of software production under the Free or Open Source (FLOSS) paradigm. The reference production model for distributed collaborative creation is called *peer-production* defined as: "Radically decentralized, collaborative, and non proprietary; based on sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with each other without relying on either market signals or managerial commands. It refers to production systems that depend on individual action that is self-selected and decentralized, rather than hierarchically assigned".[1]

This approach is expected to succeed in cases where the following three conditions apply:

1.) A complex problem is better solved by a large and unbounded group of people, which increases the possibility of finding the solution,[2]

2.) The effect of collaboration of several people is extra-additive with respect to their single capabilities,[3] and

3.) Knowledge is free to access and to use in a way that everybody benefits of it, in the present and in the future.[4]

Not one of these principles has been demonstrated to be effective in absolute terms and in every field: they represent a policy, i.e. a deliberate plan of action to guide decisions and achieve rational outcome.

The case of FLOSS in the software industry and the case of Wikipedia in the publishing industry are two of the most resounding trials giving flesh to these three principles and demonstrating the success of this policy. They originated by the almost foolish attempt of single individuals[5] deciding to start a form of social, loosely coupled, widely distributed, entrepreneurship-driven organization based on voluntary contributions.

The success of these attempts relies on the enabling power on Information and Communication Technology applied to a product, e.g. the software or the encyclopaedia, and a process that is sufficiently modular and granular.[6] But technology itself is not sufficient to create and maintain a shared creative space. A governance structure resting on a legal framework and a set of control and incentive mechanisms that regulates the transactions between the collaborators are necessary to ensure coordination.

The viral diffusion of digital technologies, in particular the Internet as a neutral platform for peer to peer innovation and creation, fed the debate on knowledge as a common immaterial infrastructure for creation:[7] In this scenario, every cultural good suitable to be digitalized, should be free to circulate through the web and to be re-used at least for non-commercial purposes. Also, the

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[1] *See* Y. Benkler: The Wealth of Networks: How Social Production Transforms Markets and Freedom, Yale University Press New Haven, CT (2006), p.60.

[2] *See* J. Surowiecki: The Wisdom of Crowds, Doubleday (2004).

[3] *See* S. E. Page: The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies, Princeton University Press (2007).

[4] *See* L. Lessig: Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity, The Penguin Press HC, (2004) *available at* http://www.free-culture.cc/freecontent/.

[5] For example Linus Torwald for Linux, Larry Wall for Perl and Eric Allman for Sendmail, for instance. Jimmy Wales was the man who conceived and started the Wikipedia project in 2001.

[6] *See* Benkler *supra* fn. 1, pp. 1-29.

[7] See P. Aigrain: Cause commune : L'information entre bien commun et propriété, Fayard (2005) *available at* http://www.causecommune.org/.

diffusion of collaborative platforms[8] could virtually enable any kind of creative project, even the most complex, to tap into the wisdom of crowds.[9] Then, why not a movie?

So it happened that an imaginative director from Brighton decided to start the enterprise of the peer-production of a movie. The community of creators is called 'A Swarm of Angels' (ASOA),[10] and is, so far, the first major Open Content film production experience.

In this paper we will outline the legal and organizational challenges faced by ASOA in creating and maintaining a shared space for collaborative film production. We will analyse the legal and organizational sustainability of this model. In particular we will focus on two areas, in which the ASOA model is the first of its kind: The Creative Commons license has been used as a governing framework for creative production for quite a while, but other than the FLOSS licenses it has not been designed for a massive multi-collaborator environment. ASOA's aspiration is to be 'Remixing cinema': the openness of the product for future remixes is a matter of identity and recognition for the community. The products stemming from the collaboration will be released under a Creative Commons non-commercial, share-alike license, which allows the creation of derivative works, 'remixes', as long as these are also shared under the same license. This arrangement was chosen to protect and safeguard the identity of the project and the robustness of it is crucial for the future of the Swarm.

The second aspect making the difference between ASOA and the FLOSS experience is the co-funding model underlying ASOA. While in the FLOSS environment, the contributors mainly contribute their time and creativity, in the Swarm community they are both shaping and funding the production. A high-quality feature film, in fact, is not a purely informational good, but also involves physical production for shooting the footage, which requires significant resources. The completion of the project therefore depends on both commitment of the community and money. Instead of relying on outside funding, the leader of ASOA decided to merge the role of the donor and the creator: under the ASOA model, the entitlement to participate in the creation and shaping of the project depends on the contribution of a nominal microfunding. This initial investment is designed to encourage participation and smoothly link the pre-production with the production phase.

The study will be based on a series of interviews with ASOA founder Matt Hanson and the major contributors to his project, the analysis of the discussion threads shaping the collective opinion of the community, and the available legal documents governing membership in the Swarm.

Even if the goal of our case study is to make a movie, the findings can be extended to a broad range of contents. First of all because the movie can be considered as a combination of different outputs of other creative content industries like publishing, design, music production, etc.[11] But also because of the 'capital intensity' of the sector,[12] the discussion of the legal and organizational aspects is pivotal in the debate about whether a peer collaborative production model could be applied to other industries than software production, in particular to industries which involve not purely informational goods and hence require significant funding.

The following chapter will provide a brief overview of the ASOA experience, while chapter 3 will discuss the details of the Swarm's governance framework. Even though ASOA is an ongoing experience, Chapter 4 relies on outputs already released by the community and aims at analysing how the collaborative production actually works and challenges the traditional role of the author.

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[8] Not only the wiki software (http://en.wikipedia.org/wiki/Wiki_software) in case of text collaborative creation, but also, for instance, 'Kaltura' (www.kaltura.com/), for the distributed video editing, and 'Kompoz' (http://www.kompoz.com/) for collaborative music projects.

[9] *See* Surowiecki *supra* fn. 2.

[10] *See* http://aswarmofangels.com.

[11] *See* R. Beck: The Art of Movie Making: Script to Screen, Prentice Hall, Peacock (2001).

[12] *See* H. L. Vogel: Entertainment Industry Economics: A Guide for Financial Analysis, Cambridge University Press (2007).

Chapter 5 will go through a deep analysis of the legal framework underpinning the common creative space and of the major issues involved. Conclusions follow at the end.

Chapter 2. A Swarm of Angels – a brief overview of an ongoing experience

The 'Remixing Cinema' is a novel approach to movie and video making, and comprises a set of more than 20 independent experiments[13] sharing some form of openness in the phases of their realization cycle. The Remixing Cinema experiments are further characterized by the collaboration of distributed and self-selected groups of people interested in either or all of:

> 1.) Participating in the creation of content (from the script to the editing process);

> 2.) Being involved in the financing of the product,

> 3.) Being active in content remixing enabled by the openness of some distribution channels.

Inspired by and sharing values with the open content movement, these projects try to apply the 'freedom' definition established in the FLOSS community[14] to the realization of complex media content such as a movie.

In order to investigate the Remixing Cinema phenomenon, which is also called 'collaborative cinema' or 'open content cinema' we study the case of 'A Swarm of Angels' (ASOA). ASOA aims at opening all three dimensions of movie production:

- The co-creation of content;
- The co-funding of the production;
- The remixing and free distribution of the end-products and of work-in-progress.

ASOA is a project aimed at creating a "£1 million feature film and [giving] it away to over 1 million people, using the Internet and a global community of members".[15] The experience began in January 2006 on the initiative of Matt Hanson, a 36 year old visionary director[16], based in Brighton, UK. His idea was to gather people from around the word with the desire to take part in a movie-making process. Participation was supposed to be 'creativity/passion/curiosity' oriented, as opposed to being focused on profit and ownership. Distribution of the final film was agreed to be 'free' in the Richard Stallman sense of 'free' as in 'free speech' not as in 'free beer',[17] because "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 digital tools to make our own digital media, whether that's film, music, or whatever". (*Hanson*).[18] 'Going with the media', means leaving the video free to flow over the

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[13] Examples include 'My movie mash up – My space': http://www.myspace.com/mymoviemashup; 'Now the movie': www.nowthemovie.org/; Jathia's Wager 'Free Science Fiction Movie - Open Source Collaborative Filmmaking': www.solomonrothman.com/solomons-corner/jathias-wager/; 'The Role Player': http://www.theroleplayer.it/home_ita.asp; 'Elephant Dream': http://orange.blender.org/;The collaborative web-movie project: http://webmovie.blogspot.com/; 'The 1 second film': http://www.the1secondfilm.com/; 'Straycinema': http://www.straycinema.com (last visited 6/12/2007).

[14] *See* Free Software *in* http://en.wikipedia.org/wiki/Free_software (last visited 15/03/2008).

[15] *See* ASOA's homepage *available at* http://www.aswarmofangels.com (last visited 15/03/2008).

[16] Matt Hanson is a film director and has worked in the TV and cinema industries for several years. He has directed and produced over 40 short films and two TV series. He founded the *onedotzero* digital film festival, which he led between 1996 and 2002. He defines himself as a pioneer of digital films. However, he has never produced or directed a feature film until the ongoing experience of ASOA. In 2004 he published *The End of Celluloid, Films Future in the Digital Age* (Ed. RotoVision).

[17] *See* The Free Software definition *available at* http://www.fsf.org/licensing/essays/free-sw.html (last visited 13/03/2008).

[18] All quotations not attributed to a specific source, refer to this web site and are attributable to Matt Hanson a.k.a. *Matt* within the Swarm. Names of members of the ASOA community, also called Angels, are printed in *italic* and all

Internet through the continuously improving digital communication medium. This means that the product is ready to be used, not just consumed, and the users can watch or remix it and, eventually, spin the wheel forward. "If you look at the Greek epics", says Hanson, "the story-tellers that were recounting their tales always put their own spin on it."

Going along with the free culture movement raises questions on the motivation to contribute, the expected rewards,[19] and the incentives to invest money in the production. The ASOA business model was designed to be "a valid new alternative, maybe more enlightened" to the Hollywood entertainment world. It was not seen as a profit making business investment - although, as discussed below, this issue remains slightly controversial. "I didn't want A Swarm of Angels to be a massively distributed investment opportunity" said Hanson. 'Business angels', who play a very exact role in early stage business initiatives, take lots of risks but expect high returns on their investment. Instead, Hanson declares: "I'm for ROE (Return On Entertainment) rather than ROI (Return On Investment). Maximising ROI would likely clash with artistic decision". Hanson needed a real angel - or better, a host of genuine angels, keen to give a reasonable amount of their money to sustain an altogether groundbreaking movie-making project in return for having an unprecedented opportunity to become involved in the creative process of making a feature film. Gathering a veritable 'Swarm of Angels' was the answer.

The minimum subscription fee to participate in the experience and to micro-found the movie was set at £25. The project founders were given exclusive rights to participate in the decision process through a web based polling system and the script editing and all other creative processes through an online discussion forum and a wiki platform. Visitors are allowed to assist, but not to actively collaborate. 'One head one vote' is the governance rule within the community, but that is the only resemblance to the limited ownership model: "this is a more unique project as a 'crowdfunded subscription model'. After all, plenty of films have tried the 'many producers/investors route', but none have tapped into the wisdom of crowds" (*Hanson*).

Apart from the genuine intentions of the founder and the subscribers, such a distributed ownership seemed a good idea in order to avoid claims with possible opportunity for reward: "It's [£25] the price of a couple of CDs, a DVD or a magazine subscription. I think people would rather pay £25 to be part of a more innovative, adventurous entertainment experience which also offers networking opportunities and media downloads", Hanson stated, and anyone investing such a small sum does not usually expect to gain from it.[20]

Hanson was the first subscriber to ASOA on 16 January 2006; the second angel joined on 13th of March. A milestone was reached on Saturday 6 May 2006 when the 100th person, *stevko*, joined the Swarm. On the 7th July 2007 Hanson said "We can call ourselves a movement now", because the second milestone[21] of 1000 members has been reached. In March 2008, project members numbered some 1,360. The minor increment from July 2007 is due to the fact that the joining process has been basically frozen until the launch of Phase 3, expected for spring 2008. The first development phases have been running for about 2 years, and the main outcomes are two draft scripts ('The Unfold' and 'The Ravages'), the trailer and poster for the project, and a poster for 'The Unfold', while other outputs are still in the pipeline (see Chapter 4). A few months after the project was launched, Hanson "made a deliberate decision to concentrate on ASOA and cancel other work such as upcoming book projects, consultancy and other productions", he is totally committed to managing the project, and periodically engages in promotional events around the world like in his

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quotation unless specified otherwise, were taken from the discussion space of the ASOA web site *available at* http://aswarmofangels.com/thenineorders/index.php (last visited 15/03/2008).

[19] *See* J. Farrell and C. Shapiro: Intellectual Property, Competition, and Information Technology, Competition Policy Center. Paper CPC04-045 (2004) *available at* http://repositories.cdlib.org/iber/cpc/CPC04-045.

[20] *Personal Interview.*

[21] *See* ASOA's mission&milestones *available at* http://aswarmofangels.com/fund/mission-milestones/ (last visited 15/03/2008).

recent appearance as a key note speaker at the prestigious Berlin Film Festival.[22] Nobody else in the community, regardless of the commitment, is paid directly.

Chapter 3. Governance structure

"Human beings are naturally hierarchical and they like arranging themselves into hierarchies of skill, age, wealth, competence, experience, whatever. We can deny it if we want, but we all know that when the chips are down and the anarchists have formed the anarchists' association, the first thing they do is elect a governing committee."(Denise Dutton)[23]

Hanson's day-to-day responsibility is to keep the Swarm together and to manage the community. In the case of ASOA, as in other open collaboration projects, there is no doubt that open does not mean flat. Hanson refers to himself as a 'benevolent dictator', borrowing a definition usually applied to leaders of big FLOSS projects.[24] He is by far the most active contributor and topic initiator. The member interviewed acknowledged the importance of his leadership and did not feel constrained by it. As *Marc* pointed out: "I think strong leadership is needed in any collaborative project. Most decisions made throughout the lifecycle of the project are subjective decisions, there is no right or wrong. The project could never finish unless there is someone at the top with the ability to make the final decisions. In my experience with directing live theatre, it's always been important for me to have a firm vision of the project. Collaboration is always well and good, but when a difference of opinion starts to get out of hand, it's for everyone's benefit the director to be able to say 'that's my decision, let's move on'".[25]

As in other FLOSS projects, the governance structure is characterized by "A strong centralization of
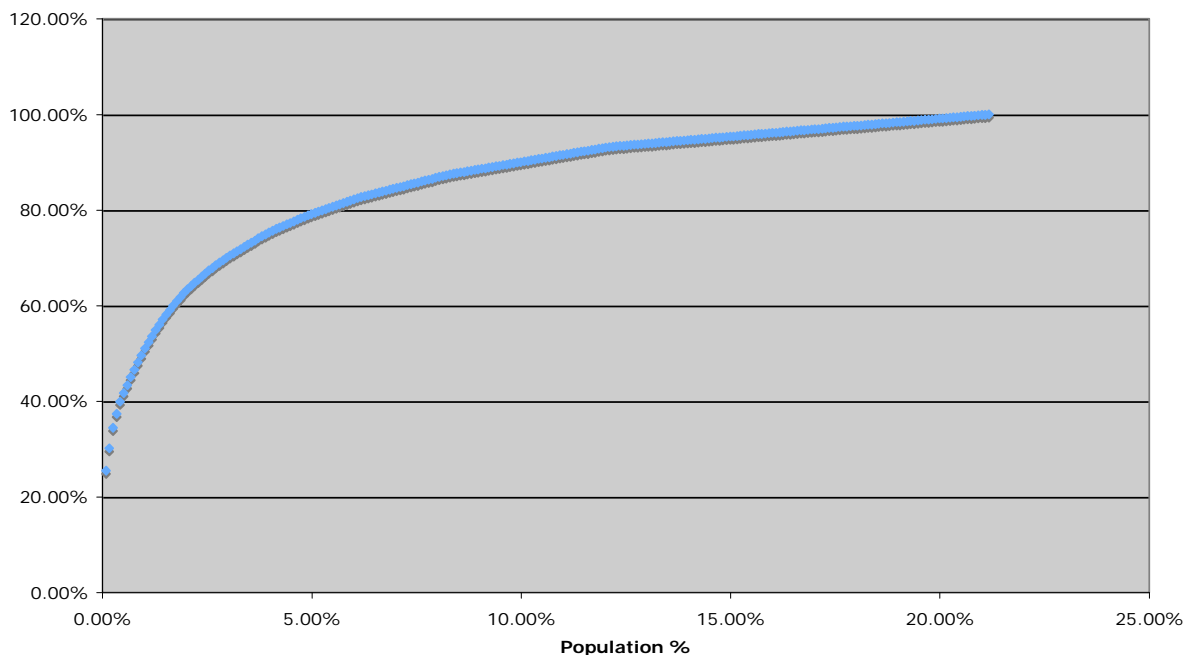
Figure 1: Participation measured by Forum contributions between Jan 2006 - Nov 2007

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[22] *See* http://www.berlinale.de/en/das_festival/special_presentations/berlinale_keynotes/index.html.

[23] *See* D. Dutton: Hard-wired for the ups and downs *in:* Charles Murray, Denis Dutton, and Claire Fox: In praise for elitism, The center for independent studies (2008).

[24] *See* J. Ljungberg: Open Source movements as a model for organizing, European Journal of Information System, 9 (2000) pp. 208-216.

[25] *Personal Interview.*

authority ... While the leader has no 'formal' authority, she has substantial 'real authority'".[26] Even though, an attempt to decentralize management responsibilities has appeared recently: since February 2008, Hanson began to share part of his administration tasks with a committee of four 'Archangels' who have "constant and constructive involvement in the project" (*JPD*) and who are supposed to help "create a more rapid decision making process, keep a more consistent drive for the project, monitor and blog on particular task areas" (Hanson).

Besides the administration roles four levels of contribution and responsibilities could be identified, related to different levels of personal commitment:

The first is leadership of the various tasks. Matt Hanson, as the project 'entrepreneur' is the main leader and coordinator, but a system of meritocracy similar to that in FLOSS software communities is recognisable: "In a way this scripting process is similar to programmer involvement in open source software. A programmer could get involved in coding through bug-testing and correction, then move up to responsibility over a particular role/section of code, as they prove themselves this scope for input increases corresponding to a level of trust and evidenced application of a skill" (Hanson). This applies to the script for 'The Ravages'. *Jean Philippe Drecourt*, 32, has a doctorate in IT Sciences. [27] Two years ago he decided to quit his academic career in order to become a writer (he has written another script while working on 'The ravages', which was released in November 2007). He resides in Reading, UK and makes a living from translation work. He joined the swarm in 2006, because it was "compelling, exciting, promising" (*JPD*), and in 2007 he was given leadership of the most experimental process in ASOA, the collaborative editing of the script. How did this come about? By "just asking Matt, proposing ideas and trying" (*JPD*). He sees his ASOA experience also as a positive addition to his CV.[28] The same happened to *Mayec*, a "freelance artist [on] CG / animation / compositing / VFX work", from Madrid, who "completely offered [his] life, sleep and sanity in sacrifice to the gods of film-making, CG and animation"(*Mayec*). Since January 2008 he is leading the process of 2.5D animation for 'The Unfold' teaser. As well as *JPD*, he tried and showed his competences, kept up with the pace of the creation process and offered the whole Swarm the possibility to learn by explaining step by step what he was doing: As a result, everybody seems to be supporting him as a leader and offers suggestion and smaller contributions. The role of leadership of the various tasks can emerge at lower levels if a process is split into sub processes. For example, during the writing of 'The Ravages' script when creating the extended version of characters profiles, each character had been assigned to a different angel, as a warrantor for the consistency of the result. The process of replication of role of responsibilities along the architecture of the product and process is called 'delegation' and in the domain of FLOSS is commonly associated to the role of 'maintainers'.[29]

The second level of commitment relates to the contributions to tasks related to content production. An example for this is the work of *Timo Hummel*, who did the soundtrack for the ASOA trailer.[30] The 34 designers who submitted the poster proposals depict the same case.[31]The third level is forum attendance and occasional posting, as *Fiona* says "I join in the forums whenever there is a new post, sometimes I give it some thought first, sometimes I research, sometimes I just respond intuitively, I post occasionally."[32] The fourth level of contribution to the project, which has the finest granularity,

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[26] *See* L. Josh and J. Tirole: The Economics of Technology Sharing: Open Source and Beyond, Journal of Economic Perspectives, Volume 19, Issue 2 (2004) p.220.

[27] In the following referred to as *'JPD'*.

[28] *Personal interview.*

[29] *See* K Fogel: Producing Open Source Software, How to Run a Successful Free Software Project, O'Reilly Media (2005) *available at* http://producingoss.com/en/index.html.

[30] *See* http://aswarmofangels.com/sting.html.

[31] *See* I. Cassarino, A. Geuna: Remixing Cinema: the case of the Brighton Swarm of Angels, SPRU Working Paper Series 165 (2007) *available at* http://www.sussex.ac.uk/spru/documents/sewp165.pdf, and Chapter 4 for a brief overview products already realised by the Swarm and respective production processes.

[32] *Personal Interview.*

is the yes-no suggestions in the forum threads and the poll voting. *Dadioflex* said about it "Wow a poll at last: I have no time to contribute to the discussion but a like voting because it is a way to live the process!!"

In terms of actual participation to the process as measured by number of posts by November 2007, the majority of the ASOA community are occasional posters with a core group of 5% who are doing 80% of contributions (see Figure 1). Matt Hanson is proud of this percentage: "It's good, breaking the rule of 1% of Wikipedia content producers". He is even worried about a more significant participation, especially in the treatment/pre-production phase of the process,[33] because it would compromise the consistency of the result: "50,000 people will not be editing the script that would be a disaster (in terms of putting out a consistent vision)".[34]

Communication among Angels can happen in several ways, with 'thought posting' in the community's online forum[35] as the preferred option. Personal messages, instant messages and voice-calls are the other choices, fairly likely to happen between the leader, his Arch Angels and the 'process maintainers'. The ASOA website offers to each member a personal messaging tool enabling to reach other Angels even if they do not provide their personal e-mail address (the choice to disclose it is optional).

3.1 Decision making

The issue of making distributed decision making effective is handled through the 'formal' system of polls and the discussions in the forum as an informal method of coordination. The poll system is used for the majority of decisions involving:
- Critical aspects of project management, e.g. how to deal with the project's timeline, with rewarding members of the community, or with profits likely to be gained from film distribution, etc;
- Nodal points in the creative development, e.g. which of the two or three proposals for the trailer, the soundtrack, or the poster to choose, which of the multiple versions of the script to be promoted, etc.

Hanson accepts the outcome as a final decision even if it differs from his personal preferences. He has veto power, but so far has not used it. As at March 2008 there have been 21 polls in the community, with an average quorum of 15%, although second year polls had much lower participation. The decision-making process is intended to be transparent. While Hanson takes a wide view of goals and expectation especially in relation to the time horizon, and tries to improve the organizational structure on the hoof, he makes every endeavour to provide regular updates and shares with the community what he is doing and what his plans are for the future of the Swarm.

The polling system aims to be democratic[36] in another way: not only it allows an 'open consultation' about the decisions but also gives every Angel the power to start a voting session about a particular issue. The electronic platform allowing people to post on the forum provides a convenient tool enabling everyone to 'build' a poll. As the result, of the 21 polls, 6 have been started by the initiative of an Angel other than Hanson.

The polls are often grouped in voting weeks. Within the best attended voting weeks (21-9 and 28-9 2006) the Swarm was asked to vote on two important points relating to the definition of the 'business model'. The first was 'Profiting from the Swarm', raising the question how to deal with possible extra-community earnings. The project leader, based on in-depth discussions with the

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[33] The life-cycle of a movie is composed by 4 macro-phases, the treatment, the pre-production, the post-production and the distribution. *See* for more details the reference *supra* fn 11.

[34] Personal Interview.

[35] *See* http://aswarmofangels.com/thenineorders/index.php.

[36] From the Greek 'Demokratia', rule by the people *see* http://www.etymonline.com/.

members, offered six options from profit sharing ranging from 'to enrich existing angels' to the founding of the forthcoming Open Movie Foundation (the 'Mozilla of entertainment', as suggested by *pavedwalden*). The winning option with 43% of the 187 voters was to reinvest the profits in another film with the same project brand, a sort of 'Swarm of Angels 2'. The second poll referred to as 'Bounty, Bonus or Reward', was to decide on the type of reward for an Angel who went the 'extra mile 'contribution to the realization of the movie. The level of effort might differ. For those angels whose contribution constitutes 'going the extra mile', the Swarm voted for a form of reward consisting of 'A gift, item, or experience rather than a purely monetary transaction' (76% of 195 voters). Such form of reward is of course not free in terms of money, neither are the DVDs that each Angel will receive when the movie is released; however, it could be included in the category of 'ROE: Return of Entertainment'. This category also includes fun, learning, sense of community belonging, friendship and other forms of personal reward.[37]

3.2 ASOA's model for collecting and distributing resources

The financial model of the Swarm, stemming from the initial design of Hanson and polished up by discussions and voting sessions within the community, could be represented as in Figure 2.
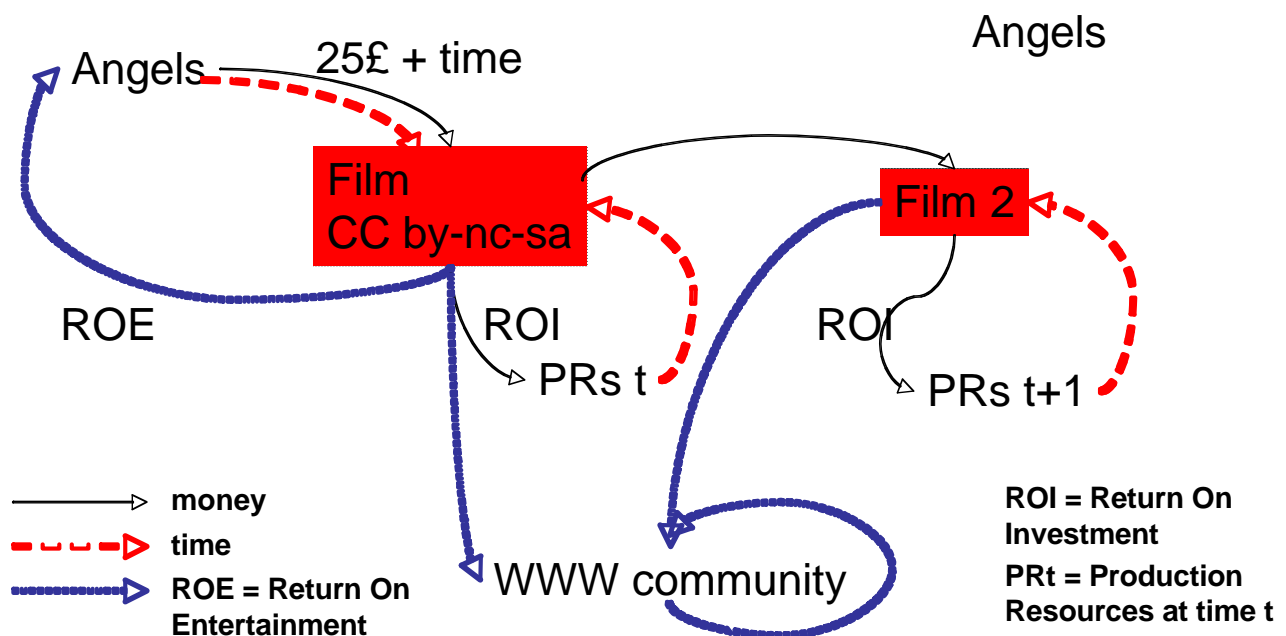
Figure 2 - ASOA model for collecting and distributing resources

The Angels are the initial and primary source of funding. "Then the movie could gather additional funds from media companies and distributors who might want to broadcast or use assets from the production for their own commercial endeavours", and from other "opportunities for the project which don't conflict with ASOA general principles, such as sponsorship and equipment partnership" (*Hanson*). ASOA will release its end-products under a license, which allows both free sharing and monetization in commercial settings, as we will analyze in more detail below.

The whole web community is going to enjoy the ROE thanks to the possibility to freely download the movie and to re-use/re-mix it or part of it. Production crew "will receive 'proper salaries' based on their involvement, and 'market rates' for a 1 million feature. I intend production fees for crew to

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[37] For a preliminary investigation of Angels' motivations and expectations with respect to the Swarm *see* I. Cassarino and A. Geuna: Distributed Film Production: Artistic experimentation or feasible alternative? The case of A Swarm of Angels, Working paper (2008) *available at* http://www.oii.ox.ac.uk/research/dpsn/ASOA_full.pdf.

be at 'scale' levels. These will be published in the relevant budgets for Angels, and the public, to peruse". Matt Hanson receives an income from this project because he "invested [his] time in this project and covered expenses up to now from [his] own pocket, without any remuneration" and because he "made a deliberate decision to concentrate on ASOA and cancel other work such as upcoming book projects, consultancy and other production". In Phase 3, Matt Hanson intends to provide full details on all expenditure and remuneration, so that "Angels will have the ability to feedback on budgets, etc as they are produced for relevant phases/production".

Money is needed to collect and centralize resources that are not available at the ends of the network. The financing aspect of ASOA is what really sets its organization apart from the practices of the Open Source Software movement. While the production of software relies on contributors, who are in the possession of the production equipment, i.e. regularly a computer, and who are volunteering 'only' their time and their skills, the production of a film requires access to facilities and special equipment, which are usually not in the exclusive possession of the contributors. Even the organizations behind FLOSS production process are engaged in rising funding by donation in order to finance activity such as legal advice, public advocacy and management of the community process. But these activities, even if necessary, are not directly linked to the actual release of the software, but to continue the general advocacy and advice work of these organizations.

"Sites like Wikipedia and Creative Commons regularly get $100,000s in donations from thousands of people in supporting a common cause", commented Matt Hanson in early 2006. "The www.milliondollarhomepage.com showed me one man can raise a million using the Internet in less than four months. I thought if people will give money to buy a pixel ad on a simple homepage, then I should be able to get enough people from around the world inspired by this groundbreaking project to make my first feature film by raising a similar amount".

Despite Hanson's comparison, the ASOA financial model is different from e.g. the Wikipedia model: the Wikimedia Foundation sustains the Wikipedia project, based on donations. Contributing funding to a Foundation like Wikimedia to support the good cause is a very different decision than editing an entry in Wikipedia. The two groups, donors and contributors, may or may not be overlapping, but there is no intrinsic linkage between the two.

Combining the roles of investors and creators in one is so far quite unusual[38] in web communities. Even if it is early to evaluate this model, it raises two interesting aspects to explore further:

1.) The possible rationales for combining these roles and resulting effects;

2.) Two inner workings of such a hybrid model rooted in voluntary contribution and its sustainability when competing on market for scarce resources.

According to a careful analysis of the discussion forum and the wiki, where the community constitutes their collective opinion, we can quote the following reasons:

1.) Freedom of expression and sense of collective ownership

In the usual production process of a movie, money is provided by an investor or a limited group of investors. Money is usually given in advance to the expected returns which materialise when and only if the product reaches the market.[39] Therefore the investor is taking a considerable risk and reserves the right to control as much of the quality and artistic choices as possible in order to make

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[38] For example 'Myfootballclub' (*see* http://www.myfootballclub.co.uk/) is testing a similar model: with £35 per member to become one of the owners of the football club Ebbsfleet United and gain the right to have a say in the club's management decisions.

[39] *See* F. Peretti, G. Nigro: Ecomonia del Cinema, Principi economici e variabili strategiche del settore cinematografico, Etas (2003).

the movie more likely to reach a large audience and become a commercial success. Some claim that actually most investments in movies are not risky investments, since producers choose to fund mostly movies devoted to a large and reliable target audience, usually young people: as a consequence the focus is on action movies, sequels and remakes, and movies featuring current stars while other segments of demand are ignored. Audience choice turns out to be constrained by the basket of films that producers perceive to be profitable or to represent low risk, which makes some genres more available than others until demand is saturated. A recent example is the production of 'Western' movies.[40] As Moran[41] describes, in the cinema 1.0 system "production exists to meet the demand created by the mechanism of distribution rather than distribution existing to serve production."

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. As we discussed above, the opinions aggregator systems such as the discussion forum and the polling are effectively exploiting and supporting the resulting powdered ownership structure.

2.) Complementarity

It is not obvious that Wikipedia needs money to run and grow. The costs associated with it are indirect and refer to the big shadowed class of management activities. Also, the quality of the final product depends only on the quality and number of contributions. There are no evident economic sustainability aspects beyond a person offering her services to the free encyclopaedia. For a movie, there is. Money has an encouragement effect on joiners because it is complementary to the effort that they would offer.

3.) Alignment of incentives

Within the ASOA model more creators mean more available funding. The project is supposed to be successful when two conditions are achieved: 1.) The movie has been produced in a collaborative way whenever viable, and 2.) The movie is 'good'. In order to make a good movie, usually a lot of money is needed. Since money mainly comes in from creators, there will be no good movie without a big amount of creators, each one of them, potentially, having a say with respect to the end product and at least influencing creative decisions through the vote. On the other side, for the above reason, there will be no massive collaboration unfruitful because of the lack of money.

4.) Entry barrier effect

The £25 'fee' is viewed by Hanson as a sort of protection for the quality of the community: "phased and paid membership positively affects the community by weeding out spammers, and ambivalent participants.[..] Members hold more weight and power than open online social networks." Of course money is not the only possible barrier and other methods could be applied.

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[40] *See J.* Wasko: Critiquing Hollywood: The Political Economy of Motion Pictures *in* A Concise handbook of Movie Industry Economics, edited by C.C. Moul, Cambridge University Press (2005).
[41] *See* M. Albert: Film, Hollywood, national cinema, cultural identity and film policy *in* Film Policy – International, National and Regional Perspectives, edited by A. Moran, Routledge, London and New York (1996) p. 2.

In order to demonstrate how a hybrid system who roots its identity in voluntary contributions, but clearly depends on money, could work and keep its balance, it is worth it to cite an episode that happened in January 2008:

J.R., an illustrator and angel, promoted the idea of doing a web-comic and an animated short to promote the launch of the script 'The Ravages'. A comic is a collaborative work and requires somebody who decides the style, a writer, an illustrator, and a painter to colour it. An animation requires 2D/3D modelling and resources for the rendering. *J.R.* volunteered to do the illustrator job himself, sure of the delayed payoff that he would get out of it. He said: "I'll put sweat equity in an ASOA comic because I think it's guaranteed to pay in the end. But I'd have to limit it to a couple pages a week so I can do other work at the same time…[…]..[*kidding*] So basically the best way to get me to illustrate your stuff, without paying up front, is to a) get me on board as the ASOA webcomic artist and write such good stuff that the other writers here can't resist you". The encouragement of Tagline good depicts the common belief of the community: "I think you'd do an awesome job for an ASOA comic. I'm sure, given the job, you'd be in huge demand when ASOA becomes the success story it deserves to be."

When *J.R.* claimed for paid collaborators, because "there's a big difference between talking about doing a thing, and having done it, making promises and having delivered" and "the writers I know who are getting their stuff done are the guys who paid for it", Hanson answered "There are some great animation studios in korea/japan (studio 4C, etc!) we could use, but I was wondering if this goes against the idea of the open source/open production studio ASOA is building... I am thinking out loud here but I guess not, as the rule I specified at the start was we recruit from the Swarm when we can, but if a specific task cannot be fulfilled inside the community then we seek to fill positions/complete work from outside it, so the work can be completed as well/dynamically as possible. So I guess it is a question of pragmatism tempering the idealism/best intentions". Where the best intentions are doing things of good quality in a crowd sourced way.

After that, several angels volunteered to take part in such a task,[42] and the concept of the comic naturally evolved in order to take advantage of the possibility to distribute the work to different illustrators and include different styles[43]. But the issue with volunteers and delayed rewards, as *J.R.* points out, is that "You never know what's going to happen [in your life]" and the voluntary time available could be more or less depending on factors that are often out-of-hand. Indeed, late January *J.R.* warned other Angels that even if he had "got an idea for a style", he had "yet to find time to try it out, for all the time [he is] putting into [his] paid work". Hanson replied after a while expressing the need "to look at an alternative route to either recruit/advertise/crowdsource another illustrator", and *tagline* suggested to post the request on a web-site helping people in creating and advertising web-comic to attract the attention of their community of artists, writers, and creators. It is too early to say how this episode will end.

A parallel creation process , the 2.5D animation of the picture chosen for the poster of 'The Unfold', is working properly under the supervision of *Mayec*, an Angel and freelance professional animator, and thanks to the active, enthusiastic participation of other 'fellow angels'. Regardless of the particular plan, which will be adopted for the development of the web-comic and short animation idea - recruiting, crowd-sourcing, or a combination of both – this episode highlights the fact that money can play the role of a safety-net as a tool to coordinate resources whenever other social or indirect incentives fail. Likely the occurrence of not having in the community the right

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[42] "Contact me if this gets momentum. I'd love to help on the animation side"(*Billy S*), "I'd be ready to work as part of the animated short team. Right now is a perfect moment, because I'm working freelance and can make a lot of time available for this. If there are enough people already in the Swarm who would be able and ready to make a team, and who can get seriously involved, we could try to follow the "recruit from the swarm" philosophy. Otherwise, hiring is our plan B" (*Mayec*).
[43] "If we go for 'propaganda' comics, we could easily have different people produce different styles. As long as there is a common visual identity (like a logo appearing in the comic), it can only improve the marketing" (*JPD*).

skilled person with the right amount of time in her hands to do some task, will happen less and less as the community will grow and will include more and more diversified people, but the presence of money gives credibility to the project, within and beyond the community bounds.

Matt Hanson, on the other side, is perfectly aware of the fact that even if there is money - granted that the crowd-sourcing of voluntary contribution is possible - using it is always the second option. When he fosters this principle, promotes the recruiting of forces within the community and relies on the distributed organisation of work, he is supported by the Angels who raise their hands to offer their services. It is his responsibility to spend money only if unavoidable. Although the decision when such necessity occurs is all but easy, he is used to discuss the issue with the Angels and, in a sense, the community is sharing his responsibility. Their common concern seems to keep the distance, as much as possible, from the traditional business model 'money brings money', built around investments and not around art.[44]

The question on how large this distance should be stimulated the debate in the community on what to do with additional income from licensing. The choice of the license, which we will discuss in detail below, allows the generation of additional income from dual licensing the commercial use of the created products.

The discussion about the dual licensing option was a matter of project mission, identity and finally of the business model.[45] Matt Hanson did not want corporations to gain from ASOA without contributing a remuneration, while some Angels objected that the generation of income - even for future productions - should not be part of the model, because it was potentially dangerous: they argued that money should always come upfront from Angels and should be directly related to a specific project "so that interested people could fund artistic people to generate interesting work and all of our lives can be enriched by the result" (*JoeK*). Actually the 'model' seems to be the issue, rather than the relationship between input and output of the production process. Matt wants "a model that can be emulated", but *Joek* thinks that charging big companies for commercial use of the movie "goes against the way that this *new model* of production should work and in fact would carry with it the danger of killing off the whole process"(*JoeK*). *Barsoomcore* seems to marry the same opinion: "As soon as you start trying to gather revenue, you're going to fall into the traps commercial artistic production is already mired in. There's just no way around it".

Except *JoeK* and *Barsoomcore*, the majority of angels involved in the discussions related to this topic seemed to agree on the fact that since money is needed to move every movie project, it is welcome. However, ASOA is not supposed to be an investment opportunity neither for Angels nor for others. It is supposed to enable the possibility to create, but not to make money from it, at least without the Swarm to have a say on that. Still, there are conflicting views on who can use ASOA products, e.g. could a major film company pay to use some material from the ASOA projects? Some of the Angels were against it because it would be supporting the current system.[46] What about non-profit organizations and other small businesses? They will be allowed, at the Swarm discretion, to use the product commercially without paying any fee to the Swarm.

The core unresolved question ASOA is facing is in what aspects the production and financial model should differ from the cinema 1.0 system and how to position it with respect to the FLOSS framework used in software production. The potential injection of additional money in the second

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[44] The process is controlled by the project timeline and split in five phases. Each phase is identified by a set of outputs and a number of members (as well as, as a consequence, by the overall amount of money collected), meaning that the community cannot grow that much (and get that much money) until the pre-production activities (where most of the creative decisions are taken) are done. *See* http://aswarmofangels.com/fund/mission-milestones/.

[45] *See* http://aswarmofangels.com/thenineorders/index.php?showtopic=120, available only to registered members of ASOA. A copy can be obtained from the authors on request.

[46] "Otherwise, rather than challenging the system, you are affirming it" (*JoeK*).

round of the project gathered from commercial exploitation by third parties, introduces a paradigm shift with respect to the first, Angel-founded stage, and may compromise ASOA's original vision.[47]

Chapter 4. ASOA's production model

Feature film crews are often identified with a small group of actors and the director. But actors and the director are only the pinnacle of a large group of people working together to create the film, including writers, audio, video, and light technicians, costume designers, editors, lawyers and many others. All these people provide complementary capabilities as the recent news about the scriptwriters' strike that substantially paralysed Hollywood has reminded us.[48] Movie as a product can be disaggregated into several small parts and the corresponding small production processes, each one of them requiring different competences. Only the pre-production involves the selection of the cast, the crew, and the location, the realization of the trailer, the poster, the soundtrack and so on. Each of these single phases can be further disaggregated in smaller parts. Fairly all of these smaller, elementary parts are suitable to be re-used and re-mixed and some of them, besides going along with the movie, can have a parallel distribution pattern, most notably the soundtrack.
A preliminary analysis of the outputs released by the ASOA community until December 2007 showed in depth how far they could be split in elementary parts and smaller subtasks. This made us argue that both the architecture of the products and the structure of the processes to get there, seem to be suitable for co-production in a distributed way and to take advantage of a community of people with different skills and amounts of time in their hands.[49]
Our focus for the purposes of this paper is to investigate the structure of such a collaborative, distributed production process, wondering if it is suitable to challenge the concept of authorship in a fundamental way and which kind of issues it raises.

At the time of this writing (March 2008) the ASOA community released: (a) the poster of the project,[50] (b) the trailer of the project,[51] (c) the poster of 'The Unfold'[52] (d) a preliminary version of two scripts: 'The Unfold' and 'The Ravages'.

Other ongoing processes are: (a) the 2.5D animated teaser for 'The Unfold' (advanced stage of completion); (b) the web-comic / animated teaser for 'The Ravages' (early stage of development).

Analyzing the patterns of contributions, we are able to identify three main kinds of architectures for the observed production processes so far:

1.) Polycentric: if the particular output is modular, each part is assigned to a single person responsible for doing it. Such person shares his creation and the creation process with the swarm, enabling interested Angels to provide their opinion and to suggest improvements, but basically he keeps the 'paintbrush' in his hands. The aggregation of the parts in the final output can be sequential (each one building upon the creation of the previous one) or radial (different autonomous parts coming up together at the end). The creation of the poster for 'The Unfold' is an example of sequential process: ASOA member *Palla* contributed the picture and several designers proposed a design for a poster based on that picture. A competition, through a poll, has chosen the winner. The

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[47] "In my opinion, it is very important that this money does not contribute to ASOA 2 (except maybe advertising in the early stages, should a ASOA 2 film exist), because then all we have done is create another Hollywood, and we have significantly undermined the 'wisdom of the crowds' approach. People who have contributed financially will be more involved, and more willing to argue for what they want" (*Urzumph*).

[48] *See* J. Steinhauer, Nov 16, 2007, Writers' Strike Opens New Window on Hollywood (http://www.nytimes.com).

[49] Modularity of the product and granularity of the process are discussed in detail in I. Cassarino and A. Geuna *supra* fn 37.

[50] *See* http://www.flickr.com/photos/matthanson/248308170/in/pool-swarmpress.

[51] *See* http://aswarmofangels.com/sting.html.

[52] *See* http://www.aswarmofangels.com/wp-content/uploads/2007/07/jvaliente_fireblue376.jpg.

process has not ended because *Mayec* is now building the 2.5D animation on the same picture by *Palla*. Figure 3 and 4 show the structure of the process and the resources involved.

The creation of ASOA's project trailer followed a polycentric but radial approach. It was structured in three phases, and drew on three main capabilities. In September 2006, through a web poll, Angels voted for the project slogan tagline from five proposals put together by Matt Hanson from an Angels' discussion thread. 'Remixing cinema' was the winner. In January 2007 Mark Hough, a professional video designer from London who had been contacted by Hanson, began work on two visual versions of the digital trailer, the 'geometry' and the 'vertex'. In February 2007 geometry was chosen by an Angels' web vote and in March 2007, they were asked to vote on the music genre from four proposals. The 'orchestral-minimal' type was chosen.

Using the same discussion thread, Hanson appealed for a music editor, and received a reply from Angel *Timo Hummel* from Germany. Hummel is 27 and, despite his young age very experienced.[53] In May 2007, after he had shared several sample pieces with Matt Hanson and the Angel community in the forum or through personal messages, the final music was released, and the completed trailer (tagline plus digital animation plus music) has been available online since June 2007.[54] The three processes were partially dependent with regards to the concept and the interfaces but are independent as creations, i.e. they can be isolated and potentially exploited separately. The consequence of the radial vs. the sequential pattern is that, with reference to Figure 3, works *a*, *b*, c, and *e* have an independent life, while *f* and *g* are vertically integrated with the ASOA output *h*. Therefore they cannot be distributed or exploited independently from the original works *a, b, c*, or *e*, but are subject to the legal conditions under which the derivative work has been produced.

Such difference can generate potential complications in the IPR management. In fact, creators can find it very convenient to leave the rights to exploit their creation commercially to the 'Swarm' as long as it is embodied in the output of the project, while keeping the right to decide whether to exploit it independently. Actually, we will analyze exactly this case when discussing the legal situation of the picture for the ASOA trailer in Chapter 5.
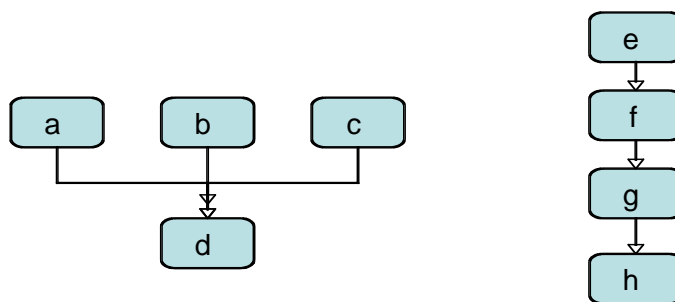
Figure 3 - Radial (left) vs. Sequential (right) creation pattern

2.) Hierarchical: is the organization typical of FLOSS projects,[55] with one leader or chief creator and several maintainers, spreading along the product architecture as long as it can be split into smaller parts and then finally in tasks. This approach has been chosen for the creation of 'The Ravages' script, led by *JPD*, and for the 2.5D teaser for 'The Unfold', led by *Mayec*.

The writing of the script for 'The Ravages' is so far one of the most challenging experiments of collaborative creation within the ASOA project. When Matt released the short outline of two

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[53] "I'm doing music and sound-related work for nearly 10 years now, so I would consider myself as a semi-professional. Doing techno for a long time and also being a DJ, I also produced a lot of music which was mainly, but not limited to, electronic music. I also did a lot of digital mixing and mastering. I quit techno music production 2 years ago. I am working as computer engineer, and always operated my music business in my spare time".

[54] *See* http://aswarmofangels.com/sting.html.

[55] *See* K. Fogel: Producing Open Source Software, How to Run a Successful Free Software Project (2005) *available at*: http://producingoss.com/en/index.html.

scripts, 'The Unfold' and 'The Glitch'[56], in early 2006, when nobody besides him had joined the project, he declared that only one of them at the end of the development and after a vote would have a chance to being produced by the 'Swarm'. Doing this, he did not mean to launch a competition between the two scripts, he intended to try two different approaches to collaborative script writing: 'The Glitch' was expected to be as much distributed and participative as possible – although he could not know how much – and 'The Unfold' was intended to follow a more centralized, traditional approach.[57]

The initial debate about the ideas of both scripts was coordinated by Hanson as chief writer. But from June 2006 on, *JPD* kept putting more and more effort into the development of 'The Glitch', and in March 2007 *Matt* officially designated him as the task leader of 'The Glitch' script group.[58] Trying to integrate the initial brainstorming discussion about the story and the characters which took place between June 2006 and February 2007 into a more consistent version of the synopsis, the Swarm has been consulted to decide which writing process was the most suitable to follow.[59] The majority (56%) was in favour of the most distributed approach, asking for a further vote among the four main scenarios emerged from the brainstorming instead of delegating that choice to *Matt* and *JPD*. The vote about the scenarios was held in late March 2007. It was followed by an articulated debate about the winning story, which led to a second split between two possible finalizations. A third voting session took place in September 2007 in order to finalize the story. In October 2007 JPD released the extended synopsis and the scene breakdown. In late 2007 the debate around the script re-flourished, thanks to the influx of new members, in particular *tagline*, from Perth, Australia, and the synopsis underwent a further improvement. The title was changed to 'The Ravages'. Since January 2008 the development of the script has been transferred to a wiki platform,[60] and the issue of organizing a virtually free and unconstrained contribution in order to keep the result consistent came up.[61] The solution was to try the 'micro-management' method, consisting in giving contributors specific tasks: A 'duty-rooster' mechanism is expected soon.[62] A delegation process has already been installed: four different persons took – auto-coordinating themselves and without *JPD* administering the distribution but only calling for attributions – the responsibility for the four main characters of the script: *tagline* for Joanna, *urzumph* for August, *owen* for Cass, and *JPD* for Alex.

3.) Hourglass: Only one person is responsible for the creation of a single output and a large group of advisors follow the creation providing feedback and suggestions while the author releases

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[56] "I have been working on outlines for the two scripts to be developed. Should be posting final draft outlines for these screenplays this week soon. The working titles I have come up with: The Unfold, and Glitch. [..] Both could loosely be described as contemporary thrillers with 'soft' sci-fi elements, although these basic frameworks may become twisted in development". Matt Hanson in the "Script development" topic of the discussion forum. 'The Glitch', as we are going to show, will develop into 'The Ravages'.

[57] "The Unfold and Glitch script processes have diverged slightly. [..] The Glitch story will be released in outlines and scene breakdowns, and the collaborative process will start in essence in a more nascent form. The spine of story strands and structure are more open to collaboration and suggestion in the first instance than The Unfold" (Hanson).

[58] "JP Drecourt has done an amazing job of synthesizing and condensing the Glitch scenario developments thread, now that he's become task leader of this 'script group'" (Hanson).

[59] The alternatives were: (1) Based on a definitive version of the story scenarios, open it up to plot building; (2) Based on a definitive version of the story scenarios, open it up once a scene listing is in place; (3) Lets have a vote on favourite story scenarios, we need more input on these first.

[60] Plotbot (http://www.plotbot.com/) was chosen as the most suitable wiki platform after a vote over three options self-emerged from the discussion in the forum. The alternatives were Celtix (http://www.celtx.com/), Plotbot and a local wiki.

[61] "I was discussing with a friend yesterday about the best way to get volunteers to contribute to a project. We came to the conclusion that micro-management, i.e. giving a specific person a small very specific task, would be something to try out. Given the level of progress of The Ravages, I think it's a good time to try this approach"(*JPD*).

[62] "I'll send him [to Matt] my notes concerning the duty roster and it should be implemented pretty soon" says JPD about the development of the Script.

incremental versions of his output to the community. This is the case with the second script 'The Unfold', written by *Hanson* and doctored by the whole Swarm.

The initial brainstorming on 'The Unfold' took place between April 2006 and June 2006 in the first forum thread about script development, gathering comments, ideas, suggestions, and contributions for both scripts. Afterwards the debate on the 'Unfold' shifted into a dedicated space where three partial releases – 'anchor drafts'[63] - of the script (10 min, 1st December 2006 – 28 min, 22nd December 2006 – 41 min, 2nd February 2007) have been published and followed by comments and suggestions from 23 members of the community. The three releases of 'The Unfold' has been marked 'not for circulation'. Only "final anchor draft and subsequent script releases will be freely distributable under: CC-NC-SA 2.5 (creativecommons.org)". The development of 'The Unfold' has been slowed in order to concentrate efforts in getting a consistent version of the twin script. The full-length version of 'The Unfold' is expected to be released to the Swarm in spring 2008 with the opening of the third phase of development of the ASOA project.

The micro-tasks of the polycentric approach, when a single artist takes up the creation of a product 'module', follow a similar approach. The artist is releasing alternative versions of the same output in the forum, asking for feedback and comments from other project members, and getting through several iterations to the final result. In case of the creation of the soundtrack for the trailer, for example, the process went through several iterations with *Timo Hummel* proposing to the Swarm 13 different versions for the music. The conversation started with a vote on music genre,[64] was shaped by 13 Angels - with a total of 44 posts - and lasted 3 months (February - May 2007). The process was supervised by *Matt*, who decided when to stop it and who led *Timo* through personal contacts, to the finalized version of the track.[65]

The task group of Angels following the creation of a particular product is, with less than 30 members so far, fairly small in absolute numbers.

In case of patterns 1 and 3 it is straightforward to distinguish between authors and contributors. Case 2 is more complex. First of all, there could be differently structured degrees of responsibility with respect to the content. And second, leaders or maintainers have both creative and management responsibilities. As *urzumph* notices about the role of character maintainers within the writing process of 'The Ravages', "they might write anywhere between 0 and 100% of the actual character bio themselves, but the job is managing the collaboration, not the writing. Thus anyone can add contributions to any character's bio, even people who are maintaining other characters, or random strangers." So far, management and creative responsibilities have overlapped. *JPD* and *Mayec* are involved in a strong creative effort, and the character maintainers wrote personally the biggest part of the characters' biographies. But as long as the management responsibility for the integrity of the creative product will be split from the effective contribution to its content, the definition of author will remain challenged.

So far no production process has been actually open to the contribution of everyone without any creative direction. When a totally decentralized approach has been tried outside ASOA, like in the case of 'A Million of Penguin', it produced an interesting but controversial result. The goal of 'A Million of Penguin' was to write a novel through a wiki, without any external explicit direction or control. The inspired words of the process observer Jeremy Ettinghausen, from Penguin Publishing, are quite effective in understanding what happened:

"And what is on these pages? Well, the story so far is more like three, four, or five stories with no master narrative yet emerging. Penguin editor Jon has called for wiki-ists (wikitas? wikitors?) to

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[63] "In essence these are pre-first draft, because they are deliberately less edited then a normal first draft would be as we want them to be more malleable as part of the participation process" (Hanson).
[64] Orchestral, Electronic-minimal, Electronic-maximal, Keyboard, Guitar, Other, were the alternatives. Electronic-minimal won with a preference of 43%.
[65] *Personal interview* with *Timo A. Hummel.*

take hold of the novel and pull a plot together, but it is already clear that many are revelling in the creative anarchy that the site provides. But here and there, amidst the chaos there are little islands of calm - a chapter made entirely of links, a 'Choose Your Own Adventure' story that seems to be going places, and lots more, hidden from the turbulence of the front page. […]The reaction to this project has been incredible, with a huge deal of interest from all over the world. Some blogs have questioned our sanity, others have coherently critiqued the entire premise of "a million penguins", and others have sagely commented that the discussion pages and list of edits are as interesting, if not more so, than the novels themselves. Fay Weldon called it 'writing without responsibility' and perhaps most wonderfully, the project has inspired poetry".[66]

Chapter 5 - ASOA's legal framework

The mission of ASOA is to be 'Remixing Cinema'. The production process lined out above relies on active participation and contribution and encourages members to build on the material contributed by others. The inherent logic of this mode of production requires that every contributor implicitly or explicitly agrees to release his contribution to the community under provisions that tolerate the use of the material in ways not originally intended by the author. Every contributor has to waive some aspects of the copyright to his contribution to legally enable ASOA's collaborative remixing mode of film production.

The predominant legal and organizational challenge for communities like ASOA is to create a free space of collaboration, in which material is contributed and shared with a common understanding of what is possible or even desired and what is not.[67] The common understanding should cover the individual contributions made during the production process as well as to the permissible and desired uses of the end-product. ASOA does not primarily pursue a profit maximizing goal. Still, in order to achieve its mission and provide its contributors with the promised 'Return on Entertainment' (ROE), intellectual property laws are claimed and actively managed.

The legal paradigm codified in statutory intellectual property law has not been designed with open knowledge sharing in mind. Its main function is to recreate the artificial scarcity of tangible goods in the domain of intangible assets to allow for the appropriation of benefits. Therefore ASOA had to find a legal arrangement to create and maintain the open space of collaboration in view and even in contradiction to statutory law. In order to get there, ASOA reverts to a well established set of copyright practices, developed and legally codified by Creative Commons.

Creative Commons (CC) is an organization founded in 2001 around law professor Lawrence Lessig.[68] Their purpose was to create a middle ground between 'All rights reserved' and the Public Domain. As a result they created a 'some rights reserved' model, which allows creators to release their products under copyright terms, which reflected their preferences with regards to the uses of their material rather than the ownership arrangements reflected in current copyright law. CC provides a modular licensing system, which allows every creator to selectively grant 'some rights' to the public. On the CC homepage, a creator can select the permissible uses and a tool on the CC web site 'generates' the appropriate license as a legal document. The dimensions of choice in the CC licenses include among others the permission to modify a work, to create derivate works, or to use the work for commercial purposes. Since CC has recently been expanded to several major jurisdictions, localized versions of the CC license are available, which makes licensing across different legal territories reasonably easy. ASOA founder Matt Hanson advocated the Creative Commons framework from early on as the appropriate choice for the Swarm Creativity of ASOA,

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[66] *See* http://amillionpenguins.com/blog/?p=21.
[67] *See* Paul David, Michael Spence: Towards an institutional infrastructure for e-Science: the scope of the challenge, Oxford Internet Institute, Research Report No. 2 (2003).
[68] *See* http://creativecommons.org.

although CC licenses have never been used in a massive collaboration of the size and complexity of ASOA.

Unpacking the complex set of legal relationships within ASOA leads us to consider two dimensions:

1.) The legal relationship between the Swarm and the users of the products produced by the Swarm and

2.) The legal relationships between the contributors and the Swarm.

5.1 The legal framework for releasing the end-products

When discussing ASOA's financial model above, we already outlined the controversy around the licensing option, which allows the generation of additional income from dual licensing. This licensing option is known as the 'non-commercial' or *"nc"* option in the terminology of the Creative Commons license.

The licence finally agreed upon for releasing ASOA's products to the public, is the Creative Commons *by-nc-sa* (attribution-non-commercial-share alike) license. *"by"* means that everybody is free to use a piece of content without asking the creator's permission as long as the creator is mentioned in an appropriate format. *"n"* means that the commercial exploitation of the product and/or its derivatives is not allowed without the explicit consent of the author or authors. The *"nc"* option is controversial also within the CC community,[69] because of the high degree of ambiguity surrounding the definition of what constitutes a 'non-commercial' use. Also some members of ASOA have questioned the effectiveness of the non-commercial use option.[70] Finally, *"sa"* means that anyone can modify the content and produce derivative works as long as the result is released under the same licence.

The choice of the *nc* option in the CC license enables the Swarm to generate revenue from licensing commercial use under a separate license. This strategy is known as dual licensing. While under the terms of the CC-*nc* license the non-commercial use of the end-products is free, all commercial uses require the permission of the rights holders. ASOA could offer a license to commercially exploit the created movie, e.g. by screening it in a movie theatre or showing it on TV, in exchange for adequate remuneration. A dual licensing strategy is quite common for FLOSS projects[71] and serves two goals: First, word-to-mouth propaganda is unrestricted, because everybody is free to share the movie with friends or to distribute it over the Internet on a private website. Second, if the interest has grown large enough that commercial exploitation looks attractive, no commercial entity can appropriate the benefits without remunerating the creative community.

5.2 The legal framework for contributing material to the 'Swarm'

In order to produce and release a movie under CC-*by-nc-sa*, every contributor has to give up some of her rights to the contributed material, in particular, the right to prevent the creation of derivative works. In order to support the dual licensing approach, the contributor does not only have to license the *nc* rights, but also the rights for commercial exploitation of her material.

Copyright is held by the author unless he assigns his right by contract to somebody else or works as an employee when the copyright is regularly owned by the employing entity. The 'hack' of copyright law used by the CC license requires each author to claim copyright in order to license it

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[69] *See* CC discussion forum *at* http://creativecommons.org/weblog/entry/5752 and Draft Non-commercial use guidelines *available at* http://wiki.creativecommons.org/DiscussionDraftNonCommercial_Guidelines (last visited 15/03/2008).

[70] *See* discussion presented above *at* fn. Error! Bookmark not defined..

[71] *See* OSS Watch Business Models *available at* http://wiki.oss-watch.ac.uk/BusinessModels (last visited 15/03/2008).

to others under the specific terms of the chosen CC license. An author must therefore not assign her rights to somebody else in order not to loose her ability to grant a CC license for her contribution. As a result the copyright for each individual contribution remains with the authors.

When contributing media content to ASOA the contributing member has to agree to a 'Media Release Statement' by including a link to this statement in the contribution.[72] In this statement the contributor grants a non-exclusive CC-*by* (attribution only) license for using his contribution "to be used as part of the A Swarm of Angels project".[73] The CC-*by* license is the broadest CC license and allows the creation of derivative works based on the original contribution and comprises both commercial and non-commercial uses. It does not force anybody to share the results under the same license, which for example would allow the Swarm to license the end-product both under the non-commercial and the commercial license.

Let us assume, the contributors would not have contributed their creation under the CC-*by*,[74] but let's say a CC-*by-nc* license similar to the one agreed for the end-product. In order to make dual licensing work, a potential licensee would have to go back to each individual contributor and negotiate the right for commercial exploitation separately. Even with a state of the art content management system and a flawless database of contributors the sheer size of the group of creators involved in producing a feature film like ASOA would regularly render such negotiations infeasible. Under the term of the Media Release Statement every contributor grants the Swarm a limited CC-*by* license for all purposes as long as she is appropriately attributed for her contribution. The Swarm can therefore incorporate the contribution and engage in dual licensing without tedious individual negotiations with its members.

But section 8-e of the CC-*by* license renders any "understandings, agreements or representations with respect to the Work not specified here"[75] null and void. Any modifications require a written agreement between the licensor and the licensee. It is therefore questionable if the restriction of the license granted in the 'Media Release Statement' to the use of the contributed material as part of ASOA is valid or if indeed by contributing a piece to ASOA, the creator has decided to release it to the general public under a license, which only requires attribution. The Media Release Statement is could indeed be considered as a written agreement to modify the license, but it does not explicitly mention a modification of the license for the purposes of restricting its scope. In the case that the limitation of the license to the use for the purposes of the ASOA project would be void, the creator would also limit her ability to exploit her contribution outside ASOA. Since the license to ASOA is non-exclusive and therefore the creators can still dispose of their creation, one could in theory sell a license for commercial use separately. But since the material is already available on the web under the CC-*by* (Attribution-Only) license, which allows everybody the right to commercially exploit the work without providing remuneration, it is hard to think of cases in which a licensee would agree to pay for a license other than cultural patronage.

Should this interpretation of the CC-*by* prevail, then the wording of the Media Release Statement would be counterproductive. Instead of empowering artists, it would actually reduce their ability to use their work. Further investigation should check if the Media Release Statement is legally bullet-proof. An alternative solution would be to alter the Media Release Statement to grant a CC-*by-nc* license to the 'Swarm' and license the right of commercial exploitation to the Swarm in the same statement, but in a separate license. This license could be a copy of the CC-*by* license (which by itself has been released under a CC-*by* license), but explicitly specify the limitation of the scope of the license to the activities of the 'Swarm'.

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[72] *See* http://www.aswarmofangels.com/spread/asoa_mediarelease.txt; Available only to registered members of ASOA. A copy can be obtained from the authors on request.

[73] *Id.*

[74] *See* http://creativecommons.org/licenses/by/3.0/.

[75] *See* http://creativecommons.org/licenses/by/3.0/legalcode.

There is a need for a consistent use of *one* license across the whole project. One of the main reasons is that so far no standard has been established to attach license information to individual media files, not to mention parts of media files, which have been created from other contributions. Although the 'Semantic Web'[76] is promising to fix this situation, this is unlikely to happen during the course of the production of ASOA. One of the unresolved issues with the CC-*by* license is that the form of the attribution is not specified in the license and no common standard has been agreed upon, but is left to be determined from case to case. In cases of adaptations, credit must be given to the original contribution and in cases of multiple authors, all authors have to be given credit. In the license it says that "The credit required by this Section […] may be implemented in any reasonable manner".[77] What kind of attribution is reasonable, in particular in the complex 'multiple authors, multiple remixers, multiple remixes' environment is yet to be determined.

To take as an example the trailer for the ASOA project. The attribution should read at minimum:

- The video material was produced by Mark Hough and released under a CC-by license, include a link to the license text as required by the CC license, and a link to the original video;
- The soundtrack was produced by Timo Hummel and released under a CC-by license, again a link to the license text, and a link to the soundtrack;
- The concept of the trailer was developed by the Swarm, and include a link to the 'Swarm's' home page and a list of contributors to the 'Swarm'.

With increasing complexity, the 'Swarm' will have to come up with an attribution system, which is more than a technical management tool, but one based on social norms which governs when and to whom credit is given and strikes a balance between the main contributors and the many minor contributions. In the current practice, most of contributors publish their creation on their own web sites or in a web site provided by Hanson for the streaming of big files[78]. Then they publish the link in the ASOA forum and require others commenting their contribution to link back to the original location of publication. It is yet unclear if this practice scales to serve as the attribution model for more complex creation based on multiple sources with a multitude of remixers engaged in combining and modifying the original sources with other derivative works. The organizational patterns self-emerging in the creation processes outlined above in Chapter 4 will have to show if they are capable of building the foundation for an advanced attribution system.

The complexity of the contributions reiterates the point that a homogeneous licensing space is the most important legal pre-requisite to create an open space of creation. If multiple licenses were used within the remixing process of ASOA, it became almost impossible to track which provisions govern which contributions, even if the required metatags should have been entered and updated in ASOA's content management system. The legal uncertainty created by different rights to different contribution would prevent the remixing of the contributions, one of the core elements of ASOA's production process.

In the current daily practice of the Swarm, license management appears quite relaxed. One of the major efforts currently underway is the creation of a poster to advertise the upcoming film 'The Unfold'. The poster is based on a picture contributed by ASOA member *Palla* who has released it under a CC-*by-nc-sa*. The *nc* option, in particular together with the *sa* (share-alike) option, which requires that all work based on his picture must be shared under the same license, prevents the use of the poster for any commercial activity, unless *Palla* personally grants a license for commercial use. For dual licensing of the film this would imply that either *Palla* has to tolerate the use of his

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[76] *See* T.-B. Lee, J. Hendler, O. Lassila: The Semantic Web *in* Scientific American, May 2001, p- 34-43.

[77] *See* CC-*by* legal code *supra* fn. 75.

[78] *See* http://blip.tv/.

picture on the poster advertising 'The Unfold' or could claim adequate remuneration for every use of the picture. Alternatively, the Swarm has to create a new poster for commercial use.

This incidence as harmless it may look at this stage of the process, shows that the urgency of creating a homogenous legal space has not been recognized and is not actively enforced within the Swarm's creative process. This will create significant legal uncertainty and create the possibility for legal hold-ups which could endanger the overall success of ASOA's creativity or at least prevent the dual licensing strategy agreed upon by the Swarm.

5.3 Who - or legally speaking what - is a 'Swarm'?

After this excursion into the legal relationships within the Swarm, we can revisit the dual licensing model described above. A licensing agreement is a contract between a licensor and the licensee. The members of the Swarm contribute their creation under CC-*by* to the Swarm and agree to tolerate the commercial exploitation under a license negotiated by the 'Swarm'. But this requires that the Swarm was capable of acting as a licensor and was allowed to license the rights on behalf of their members.

In all legal documents, including the membership agreement, the 'Swarm' is always referred to as the 'Swarm' without mentioning or alluding to a specific legal form of organization. The most basic legal structure, which is created if people express their intention to pursue a common goal, is a private partnership. The membership agreement could be considered as a partnership agreement. A private partnership does not have a separate legal entity from its members, i.e. is no juristic person, like e.g. a limited company or a foundation. In contrast to an incorporated company, which is a juristic person, a partnership cannot by itself sue or be sued, hold assets or right, hire agents, or sign contracts. All these rights remain with the natural persons. The assets of the partnership are owned on behalf of the other partners, which are each personally, jointly and severally liable for the liabilities of the partnership.

During the analysis on the legal relationships within the Swarm we have seen that copyright remains with the individual members of the Swarm. Therefore it doesn't matter if the Swarm is a legal person and potentially the holder of rights or not. But who is the licensor for the dual license? Since every member of the partnership can legally represent the partnership, the election of a Swarm representation as recently suggested by Matt Hanson should solve this problem.[79] The Swarm Representative would be entitled to represent the Swarm and negotiate licenses on behalf of the Swarm. The Swarm representative would also have to bring legal action against infringers of the Swarm's copyright, e.g. by using an ASOA product commercially without having obtained the appropriate license. The Swarm by itself could not bring legal action, because it does not have the right to sue.

5.4 Comparison with other models of managing mass collaboration

How do other models of collaborative production cope with the challenges of coordinating a multitude of collaborators and how do they structure the legal relationship among them?

1.) Proprietary film production

The legal complexity of film production is particularly high because of the multitude of rights and the multitude of players involved. Performers, screenplay writers, producers, and musicians hold some rights on their creation and their appearance respectively.[80] The 'traditional' film industry address this by requiring the contributors to sign broad contracts, which assign all rights to a central

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[79] *Personal Interview.*
[80] *See* Lessig *supra* fn 4. p. 102.

authority, normally the production company, which acts as the rights holder and licensor of the completed film. The 'Swarm' is a network of collaborators confined by a membership agreement with a low degree of organization. It is questionable, if the 'Swarm' as a partnership could technically be the central copyright holder and act as a licensor respectively. It also seems to run counter to the ambition of the 'Swarm' to establish a strong central organization.

It would be wrong to claim that collaborative production and central copyright management are incompatible. There are several successful implementations of proprietary appropriation models, in the context of co-creation communities: The Korean citizen journalism platform 'OhMyNews' or the US based medical information community 'Sermo' claim the copyright for all contributions of their members. After some resistance from the community, they opened up the terms of the contract and grant contributors a license to re-publish their contributions outside the platform.[81] This finding supports that contributors expect a certain reward for their contributions, which may or may not include the copyright to their contributions. The IP policy of a platform has in all instances be closely aligned with the expectations of their members. Since ASOA is very much based on the believe of a collaborative 'Remixing cinema' any proprietary IP regime would fail to gain user acceptance as we can see in the following statement taken from the ASOA discussion forum:

"I just heard a horror story yesterday that the MySpace MyMovieMashup—that is being produced by Fox—takes all rights of everything that is contributed and contributors don't even get guaranteed credit for their work!!"[82]

2.) Public domain

The idea of releasing something to the general public to gain popularity is quite old and in particular for software production a well-established paradigm. 'Public Domain' software is software, which the creators 'donate' to the 'Public Domain'. Every person is free to use the code 'as is'. This approach suffers from one deficit: Once the creator has given up his rights by donating it to the 'Public Domain', he has no control on uses of his software: A Public Domain strategy does not protect against unwanted exploitation of the donated material. A company could sell a piece of public domain software, e.g. by making minor improvements, or somebody could use a public domain film as a commercial for a product you do not agree with. Public Domain has been a successful approach to create a free space of collaboration, but it had not considered the challenges of maintaining the space open, because the resulting space is basically unmanaged and unprotected against commercial exploitation. It is a common mistake to confuse a 'some rights reserved' license like a CC-*by* license and a Public Domain contribution. Although in practice a user of a piece under CC-*by* may use the material in the same way like a piece from the Public Domain, both are fundamentally different concepts and require a different legal analysis. By donating a piece to the Public Domain a creator waives her rights to her creation.[83] In contrast, when releasing a piece under a CC-*by* license the creator retains all her rights, but licenses the use of the material without restrictions to everybody.[84]

3.) Free/Open Source Software production

To address these deficits and to preserve the free and open mode of software development, MIT researcher Richard Stallman developed a strategy to facilitate collaboration under equal terms among an amorphous group of collaborators and users. The 'GNU Public License' (GPL), which governs this particular production strategy, is based on a 'hack' of copyright law: First, a creator claims copyright law for his code and then offers it under the terms of the GNU public license to the general public. Under the terms of this license any user is entitled to use and modify the obtained

[81] *See* W. Richter, T. Escher, D. Bray: The performance of Distributed News Aggregators, Working Paper, Oxford Internet Institute (2008) *available at:* http://www.oii.ox.ac.uk/research/dpsn/Newsaggregators_full.pdf.
[82] *See* Hanson at http://aswarmofangels.com/thenineorders/index.php?showtopic=370&st=20.
[83] *See* http://creativecommons.org/licenses/publicdomain/
[84] *See* http://creativecommons.org/licenses/by/3.0/us/legalcode

software for her purposes. But if users make modifications to the obtained code or include their own code into the obtained code, and decide to distribute the results, they agree to also release their contribution under the terms of the GPL. This is called the 'viral' effect of the GPL.

Based on the GPL's idea of creating a new paradigm of IPR management by claiming copyright and then licensing it under the desired terms and conditions, a variety of "GPL-derivatives" have been created. To discuss all variants of 'Free' or 'Open Source' licenses would be beyond the scope of this paper and would in fact repeat a discussion already broadly documented elsewhere.[85] The licensing arrangements defined in the GPL and its derivates are in particular useful for large-scale software projects developed by a distributed community, in which hundreds if not thousands of collaborators contribute major or more often also minor pieces to the project. The use of one standard license across the project avoids tedious negotiations among the community members. Most licenses are backed by strong organizations, e.g. the Free Software Foundation (FSF) for the GPL, which maintain and develop the license and represents its users.

GPL-style licenses are not only used for software production, but also for content. The GFDL[86] is a GPL-type license originally developed to cover the documentation written to accompany GPL'ed Open Source Software projects.[87] The GFDL has gained importance over the last couple of years, because all Wikipedia articles are released under the GFDL. While the GPL contains many provisions addressing issues specifically related to software development, in particular the availability of a modifiable version of the source code to allow analysis and modification, the GFDL is designed to govern evolutionary text development. The copyright remains with the main authors of the text, which grant a license under the GFDL. When creating a modified version of a GFDL'ed text, the GFDL requires among other things the modifying author(s) to insert their own name(s), to mention the original authors, and to include the same license in the modified document. There are further rules about documenting the history of the document and maintaining acknowledgements and dedications. The GFDL also allows the controversial 'freezing' of passages of a text. Initially devised to avoid the deletion of the copyright notice at the beginning of the text, it has recently been used to protect debated paragraphs on Wikipedia from vandalism, a controversial decision currently debated in the community.[88] The popularity of the GFDL as an open content license is slightly impeded by the requirement to enclose the full license with every published document. While this may seem feasible for digital documents, printed documents will regularly try to avoid enclosing a print out of the full license.

Licenses like the GPL or the GFDL, but also the CC licenses are backed by strong organizations like the Free Software Foundation (FSF) or CreativeCommons.org, which maintain and develop the licenses and represent their members. In particular the FSF has achieved some successes in enforcing the license by approaching infringers and notifying them of the legal consequences of their actions. In particular the FSF's mission is based on a set of shared beliefs around the word "free". The FSF is the maintainer of the "Free Software Definition"[89], a set of principles which define what is considered "free". The debate about the definition of "freedom" is an integral part of the identity of the Free Software community and is facilitated by the FSF. Adjustments of the GPL to cover new developments like so called 'Digital Rights Management Systems' (DRM) have caused a huge controversy within the community, which has shown how important these issues are

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[85] To get started *see* M.-W. Wu, Y.-D. Lin: Open source software development: an overview *in* Computer Vol.34, No.6, pp.33-38 (Jun 2001); *see* E. Raymond: The Bazaar and the Cathedral: Musings on Linux and Open Source by an accidental Revolutionary, O'Reilly Media (1999).

[86] *See* GNU Free Documentation License *available at* http://www.gnu.org/licenses/fdl.html (last visited 13/03/2008).

[87] *See* Wikipedia:copyrights *available at* http://en.wikipedia.org/wiki/Wikipedia:Copyrights (last visited 13/03/2008).

[88] *See* for example http://home.twcny.rr.com/nerode/neroden/fdl.html (last visited 13/03/2008).

[89] *See* The Free Software definition *supra* fn. 17.

for some members.[90] The discussions on the ASOA forum produce a set of agreements on particular questions surrounding the production of an Open Content Movie. Still, it seems too early to aggregate the agreements into the 'ASOA Free Content definition' given that the production process has just begun and several agreements still need to survive the 'on-road test'. As the ASOA community continues to grow, it will become increasingly necessary to codify the basic agreements to allow new-joiners to get up to speed fast and to engage not only in the production process, but also in the on-going negotiation process of the identity of Open Content Movie production.

The GFDL and CC licenses are addressing similar issues. The CC licenses allow more flexibility to choose which uses are permissible and which are not. The GFDL for example does not allow you to prohibit commercial use or prevent the creation of derivative works – modifications – of your text.

On the other side, the GFDL comes with an established set of practices to credit others for their works and the possibility to prevent the alteration of some parts of a text. The documentation requirements come with a heavy administrative burden, which may render the GFDL less attractive for many uses. Dual licensing a piece of content under GFDL and a CC license is possible for some options of the CC license, e.g. the CC-*by-sa* (Attribution - ShareAlike) license to allow contributors to post their material in forums with different copyright policies.[91]

5.5 Biggest legal risk: Infiltration with copyright-protected material

The open nature of ASOA's production process poses a significant legal risk for the end-products created by ASOA: the risk of infiltration with copyrighted material.[92]

This risk is not only hypothetical as a recent example from FLOSS production demonstrates. Former software producer and now license trader SCO brought action against IBM and several other industry players for violation of their copyright. SCO claimed that IBM had contributed pieces of code for which SCO claim to hold the copyright to the source code of the Linux kernel and threatened to take action against all users of the 'infiltrated' Linux versions, among those a major Investment bank. Although the claims have never been substantiated by SCO, which had to file for bankruptcy soon after the action had been brought, the incident shows the potential dimensions of an infiltration with copyrighted source code. It showed the vulnerability of open processes even for non-intentional infection with copyrighted material given the complexity surrounding the topic as well as the complexity of identifying and cleaning the infected pieces from a complex system like a piece of software.

ASOA invites the contribution of a diverse variety of materials: the text for the script and the characters, music, individual pictures or drawings, and finally footage for the production of the film. While it is already hard to search for copyright protected passages of text, the identification of the legal situation for a picture or a song is even harder because of the lack of proper search and comparison technology.[93]

When joining the Swarm, each member agrees in the general 'Forum Terms and Conditions' not to use the forums to post copyrighted material unless the copyright is owned by the contributor.[94]

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[90] *See* C. Babcock: The controversy over GPL 3 *in* Information Week (March 19, 2007) *available at* http://www.informationweek.com/story/showArticle.jhtml?articleID=198001444 (last visited 15/03/2008).

[91] *See* e.g. Wikitravel:Dual licensing *available at* http://wikitravel.org/en/Wikitravel:Dual_licensing (last visited 13/03/2008).

[92] *See* P. David and M. Spence *supra* fn 67, p. 42.

[93] *See* the attempts of Audible Magic to position in the market a system to identify illegal copies of music files and the critique of the feasibility of such systems issued by the EFF *available at* http://w2.eff.org/share/audible_magic.php (last visited 13/03/2008).

[94] *See* ASOA Terms and Rules *available at* http://aswarmofangels.com/thenineorders/?act=Reg&CODE=00 (last visited 14/03/2008).

In addition, upon contributing media content each contributor declares in the additional 'Media Release Statement'[95] that she was "entitled to give permission to use" the material including the material on which the contribution is based, e.g. music or images as parts of footage. But the legal implication of a false declaration is not immunity from prosecution. The Swarm could in cases of wilful "infiltration" seek damages from the evil-minded contributors, but the damage for the project would be the same: A copyright owner could demand the removal of his material from the film and seek damages. Therefore further organizational precautions have to be installed to respond to such requests, namely a rigorous accounting and tracking system for all contributions during their life within the ASOA project and a notice and take-down procedure to address complaints by copyright owners in due time to avoid liability.

To understand the liability issue, let us consider the following case: A member of the 'Swarm' is a cameraperson, which works under a 'work for hire' contract for a film production company. In his spare time he is also a contributor to ASOA. But instead of contributing the footage he has been shooting in the evening, he is contributing the footage he has produced during the day time. The rights to this footage do not belong to him but to the company he works for. He is therefore not entitled to contribute this material to the Swarm. A manager of the film production company watches a product by ASOA and recognizes material, which is his company's intellectual property. Who would he bring legal action against? The general rules of the partnership make all partners jointly and severally liability. Therefore the company could look for a suitable member of the Swarm, easy to reach and high on liquidity, and bring an action of liability against him. The sued member would be personally liable and would then have to seek himself remedies against the member of the Swarm, who has contributed the infringing material. This puts all members of the Swarm at risk of liability for the products produced by the Swarm, although the Swarm representative will be the most obvious point of contact. Nevertheless, the legal risk demands strict internal checks and balances to prevent the Swarm from being 'infected' by copyrighted material.

Another legal risk is created by contributors withdrawing from the project. ASOA has taken a couple of paradigmatic decisions, e.g. the non-commercial use controversy. In each of these instances some contributors will have 'lost' the vote and may not agree with the opinion of the majority. They may threaten not only to withdraw from the project, but also to withdraw the license to their contribution. The 'Media Release Statement' clarifies that the license is granted "unconditionally and irrevocably" and therefore contributors cannot retract their contribution in case they are dissatisfied with the project's direction. One could be tempted to bring the legal argument that for fundamental decisions the project after the decision is no longer the project the contributor originally intended to contribute to. But for most cases the provisions in the license should be strong enough to prevent contributors from endangering the progress of the whole project by revoking their consent after a debated decision. The effort of identifying the contributions affected by revoking the license is prohibitively high, even assuming the use of a document management system given the multitude of contributors and contributions and the delusion from 'remixing' the many contributions into one end-product.

5.6 Technical standards and their impact on the open space for collaboration

We have seen in the previous sections, what role intellectual property rights and in particular copyright play in creating and maintaining an open space for collaboration. A related discussion is the use of 'open' or 'free' tools and standards to enable collaboration.

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[95] *See* ASOA Media Release Statement *supra* fn 72.

In this section we will argue that proprietary standards protected by intellectual property rights can serve as a:

1.) Potential cause of discrimination between users and uses;

2.) Potential obstacle to the actual collaboration in the production of digital outputs, and

3.) Potential obstacle to the remix of media released along and beyond the life of the project.

Unlike text and software source code, media files can be produced and released in different 'formats', i.e. different digital representations of an image, a sound, or a scene. The reproduction of the media data regularly requires a particular 'player', i.e. a piece of software to decode and restore the original picture, sound, or film from its digital representation. The available formats for digital media files vary widely with regards to their 'openness', i.e. their accessibility and modifiability. In order to enable people to work on the same media output, files should be readable and modifiable from all the persons involved in the cooperation. In a proprietary environment, e.g. a film production set, all workstations and PCs run the same Operating System and have the same production software installed, hopefully in the same version. In distributed, voluntary collaborations every contributor is volunteering her own equipment, which raises a huge interoperability problem, which risks hampering the collaboration and the concept of producing an 'open-source movie'.

One way to address this issue is to agree on the standards for the media files and for the tools used for production upfront. This may discriminate against users who do not possess the sometimes quite costly production tools. An obvious way to avoid discrimination is to agree on Open Standards, which can be read and created using a wide variety of tools or even agree on the use of freely available Open Source production suites.[96] A long and passionate debate in the ASOA forum has highlighted recently, that this solution holds only virtually. Professional designers, musicians, video editors or game developers are trained to use a particular proprietary software suite. Since they are already volunteering their skills to the community, they are usually not happy to spend more time in learning another application to engage in the collaboration. Also in many cases, no OSS production tools exist or the available tools are not good enough to find the acceptance of the professionals.[97] The concept of an Open Source movie is put at risk by this issue: the use of proprietary standards jeopardizes the ideological affinity with the FLOSS movement and shows in practice the compromise between what the community would like to be and make,[98] and what is actually possible now. The debate among the ASOA members grew so passionate because it involved a compromise on identity.[99] The solution was to let pragmatism prevail: while the project would prefer to join and share the Open Source cause, no obligation will be imposed to use OSS tools and standards. The decision on which particular tool to use will be negotiated each time between the people actually involved in the creative process in order to promote the pragmatic principle of inter-

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[96] As an example *see* 'Elephant Dream' (http://www.elephantsdream.org/). The animation open movie made by the Orange Open Movie Project Studio, based in Amsterdam, has been realised entirely with the OSS product Blender.

[97] "I've been using proprietary software for my 3D / compositing / video work for years. As far as compositing and video are concerned, I can learn a new software fine in a couple of days, a couple of weeks for the most complex ones. But I have yet to find an open-source software that will really let me do all the stuff I do with a Combustion/ Toxik/Flame. And for 3D…"(*Mayec*).

[98] "So I guess it is in some way up to the tastes of the individual contributors, but I definitely don't think we can say that we'll use whatever is best, because it's not in the spirit of the project as I have come to understand it to seek proprietary solutions just because they are easier or more practical, because the status quo is always the path of least resistance" (*JN*). "I'm of Justin's persuasion. I'm not here to make a movie, I'm here to make a change"(*JR*).

[99] "I'm here to make a change on HOW to make a movie, on the whole, from preproduction to distribution. Not a change on everything in this world. Just making a movie is a big challenge already, and making a GOOD movie is even more so"(*Mayec*).

changeability of files instead of entering into the ideological arguments of the Open Source movement.[100]

This discussion raises the economic, technological, and even artistic relativity beyond the definition and the scope of the Open Source media movement with respect to the FLOSS principles. [101] There are no straightforward and definitive rules to avoid the discrimination between users and user.[102] Interoperability is a potential issue even within a delimited group of volunteers if they provide their own digital facilities of production. In practical terms, as far as we can observe from the organisation of the collaboration analyzed in Chapter 4, this is not a huge limitation, because the group of creators is homogeneous in their preferences on formats and equipment through the professional training they share.

Proprietary formats threatening interoperability have to be treated like a technological barrier of entry into this group of trained professionals, which will have an effect in the future. The community of creators is ideally supposed to be virtually unbounded in a diachronic perspective. Thanks to the possibility of remixing, new creators are invited to enter the community at any time, deriving new artistic creation from the material already released. But this opportunity does not only depend on having the legal right do to so; it also depends on the actual possibility to access and modify the material using tools available to the potential creators.

Chapter 6 – Conclusion

A movie is a very complex product: to be realised it requires the coordination of a huge and diversified set of complementary resources. For that reason, the making of a movie is a collaborative process. In the mainstream organizational model of movie-making, coordination is achieved by allocating money within a market framework and the control over outputs is vertically integrated. 'A Swarm of Angels' is instead grounded in voluntary and self-allocated contributions of its members. But in contrast to the cases of the production of purely informational goods like software or text, a movie requires more than time and skills to be completed. It also requires access to facilities and special equipment, which are usually not in the exclusive possession of the contributors. Therefore, money is needed to collect and centralize resources that are not available at the ends of the network within a *peer-production* approach. In addition, money offers the second best alternative when other mechanisms of coordination of complementary voluntary efforts fail. The traditional financial architecture of a movie is based on a strong division of roles between those who provides money and those who create art. As a consequence, artistic choices are reduced by considerations on return-on-investment.

ASOA aims at bringing artistic independence to the creators: the financial model joins the role of founders and artists through a mechanism of distributed micro-funding. Every creator contributes £25 to the production. This contribution entitles him to engage with the project and to have a say in management of artistic decisions.

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[100] "I think these are decisions that have to be made by all the angels, in the form of a vote. As we are doing right now for the screenwriting tool, we can offer the angels different solution and let them choose, keeping in mind the OS solution."(*JPD*); "Yes we definitely want to do the right thing but be pragmatic too. So when we check out all choices as we go along, we'll assess the pros/cons of each solution, and as much as possible the preference track will be:
1- open source solution - we want to input and extend the open source community
2- isv (independent software vendor) - we want to support independents
3- proprietary - if its best of breed and there's no alternative then no need to shoot ourselves in the foot" (Hanson).
[101] A discussion on what should and should not be considered OS media content has been started by Matt Hanson in the ASOA wiki *available at* http://aswarmofangels.com/2008/01/7-rules-for-open-source-media/ (last visited 15/03/2008).
[102] "Many have said: we should use open-source software because it gives the occasion to more people to participate. Well, if you want more people to participate, let them use not just open source software, but any software they can and please. This is the most inclusive option" (*Mayec*).

The distributed decision-making process is facilitated through informal processes emerging in the discussion in the community's discussion forums, and a more structured voting system. Matt Hanson plays a crucial role as the recognized leader. He has substantial rather that formal authority. In order to keep the Swarm together day by day he plays the role of the 'benevolent dictator'.

The distributed creation of the ASOA movie is achieved by temporary and voluntary task forces, in which a fairly limited number of creators gather their contributions and realise a particular product as an output. The granularity of the contributions is different and organised in a quite structured and hierarchical process managed by the assigned role of the maintainer for the integrity of the creation. So far, the role of the maintainer overlapped almost always with the position of the major contributor in terms of artistic content. But it is possible to envision a scenario in which one person is taking care of the artistic integrity and several different artists are contributing the content. In that case the paradigm of the single authorship would be challenged. Only further observation of what will happen in the community will tell us if this split scenario is realistic and sustainable.

From an organizational point of view, ASOA is experiencing a continuous and constructive tension between the distribution of choices and the centralization of responsibilities. Such tension is shaping a flexible organizational framework day by day that tries to develop a sustainable alternative to the established production model of the movie industry from the collection of resources to the exploitation of the results.

The ASOA slogan is 'Remixing Cinema'. It does not only aim to empower the present creators actively engaged with the ASOA community, but to empower every creator within or beyond the bounds of the 'Swarm' in the present and in the future by releasing a movie, which actively invites to be continuously remixed. In order to govern and protect this vision a particular set of CC licenses has been chosen. The CC framework provides a flexible and adaptable frame for the complex web of legal relationships between ASOA's contributors. As in the governance framework, the issue of distributed control over the creation is dealt with by a combination of legal and social norms, based on agreed best-practices and exceptional arrangements negotiated with the creators. Underlying this web of legal and organizational relationships there is a community of real individuals with different needs and sensibilities, agendas and motivations to contribute. To analyze this ecology of games and players is an important next topic of research to link the observable set of social practices to the underlying multiplicity of motivations and biographies.

The remaining legal risks of withdrawal from the project and infection with copyrighted material have been addressed by additional contracts, the members agree to when starting to actively contribute material to ASOA. The validity of the contractual arrangements has yet to be proven in reality. The identification and tracking of individual contributions during the remixing process will pose a huge technical and organizational challenge to the content management system used by ASOA. In view of the legal risks with regards to the incorporation of an unlicensed piece of media, the investment in an industry-strength content management system will for sure pay off. The dominance of proprietary standards in the media environment and in particular the lock-in of professionals in the use of proprietary tools and standards by training poses a large challenge to the organizational aspirations of creating an 'Open' Movie production process.

Although lacking the long-standing social practices, which have been established in the FLOSS production communities for software, the discussions in the ASOA forums demonstrate the emergence of a consensus developing the CC framework into an operational legal and organizational framework for Open Content Movie production. The crucial question will be how this consensus evolves as more and more Angels are entering the project or more funding becomes available. Matt Hanson as a respected figure seems to be capable of keeping the movement ideologically together, but in the mid-term a set of codified principles like those put down in the

Free Software definition[103] seem to be the preferred solution to decentralize and broaden the discussion process.

ASOA at its current state is an 'ongoing experience'. Although not the only project in the 'Remixing Cinema' or 'Open Content Movie' space, it is by far the most ambitious project and the only one addressing all three aspects of film production under an 'open' paradigm: the co-creation of content, the co-funding of the production, and the free distribution of the end-products.

We have analyzed all three phases from an organizational and legal aspect and depicted the emerging solutions to the several challenges involved in the different phases. While some of the practices, e.g. the existence of a benevolent dictator, the reliance on maintainers for individual subsections, or the compulsory use of a governing legal framework to create and maintain an open space of collaboration, have been borrowed from and are comparable to the practices of the FLOSS movement, movie production faces some more complex challenges, which have never been addressed before: The legal complexity of the contributions with the several rights attached to each contribution, the organizational complexity of maintaining artistic integrity across a full feature movie, the dominant use of proprietary standards for an open collaboration, and the additional challenge of raising and allocating funding along the production process are first of its kind.

The nomination of a Swarm representative is a big step to allow the negotiation of licenses on the market and to legally represent the Swarm in public. To decide how sustainable the community and the emerging community processes are further observation is required. It will not be before the final ASOA movie has hit the public audiences to decide if co-funding, co-creating, and co-remixing is a viable production for the cinema of the future or an artistic experiment that will remain the unique experience it is right now.
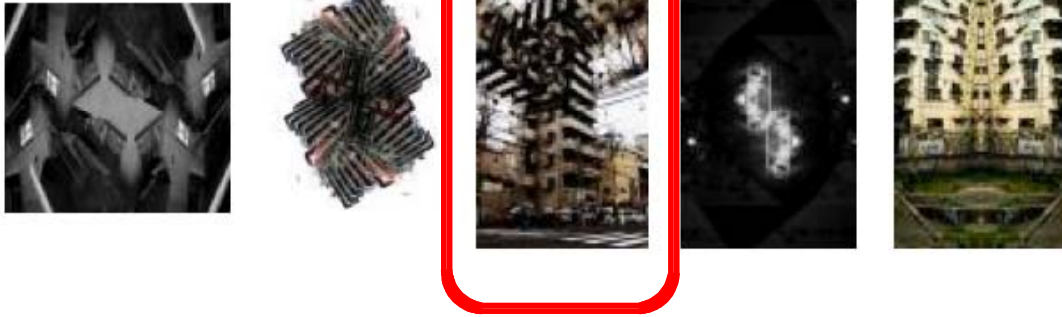
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[103] *See* The Free Software definition *supra* fn 17.
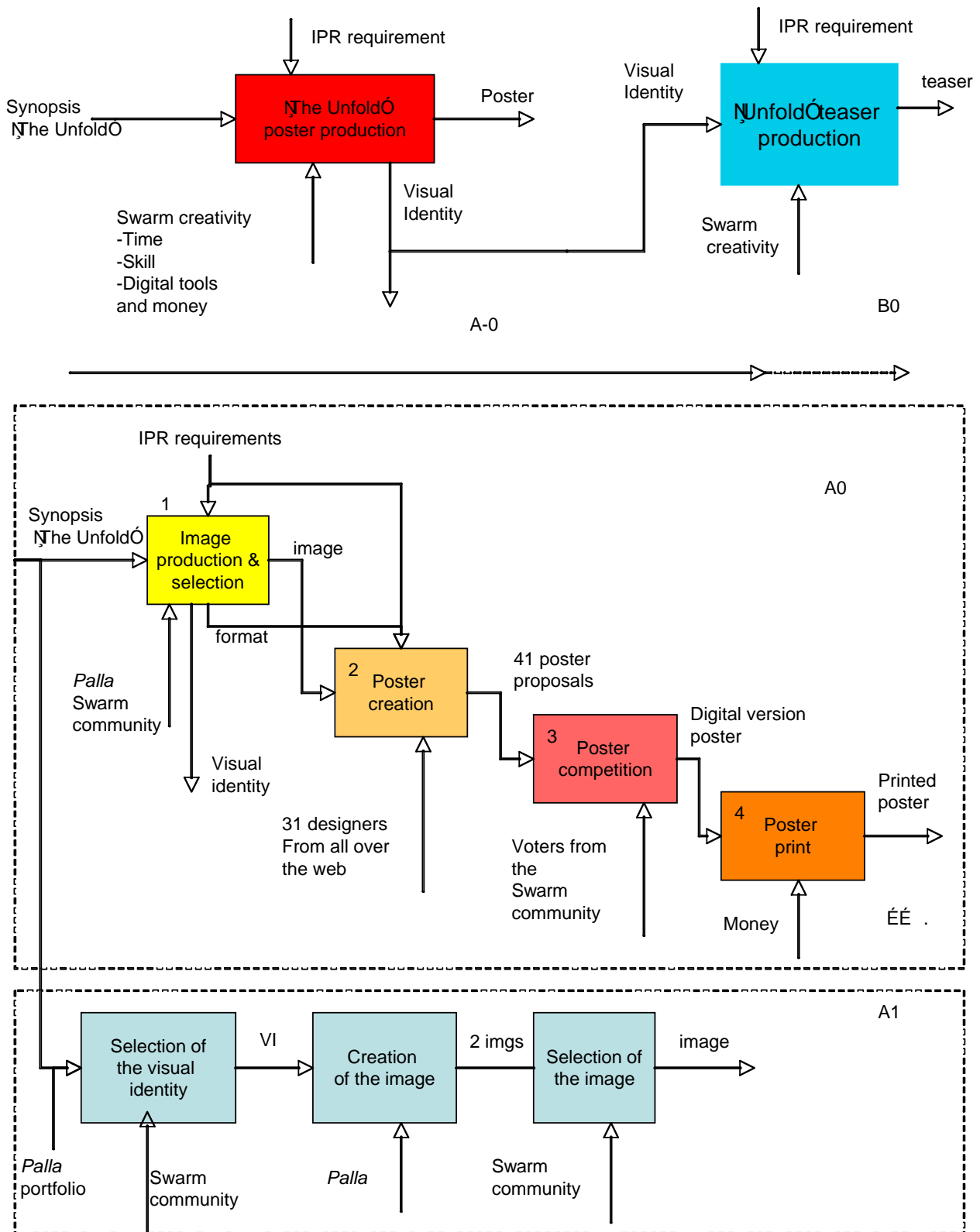
Figure 4 - IDF0 (http://www.idef.com/idef0.html) diagram representing the input-output relationship among 2 ASOA production processes and respective sub-processes

Selection of the visual concept

A1.1

Creation and selection of the visual identity

A1.2

Posters creation and selection (below: 5 posters taken form the 41 proposals submitted)

A2

2.5D animation process of the image representing the visual idendity for "The Unfold"

Official poster of "The Unfold"

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Figure 5 - Representation of Figure 4 in pictures