Paper to be presented at the International Conference on

ORGANIZATIONS, INSTITUTIONS AND INNOVATION IN THE ICT SECTOR: WHERE DO WE STAND?

Conference organized by Institut-Mines Télécom,
Télécom École de Management
in Paris, 25-26 June 2012

How to (Crowd-)Fund and Manage the (User-)Innovation. The case of Big Buck Bunny

Massimiliano GAMBARDELLA
EconomiX, University Paris Ouest & Orange Labs

How to (Crowd-)Fund and Manage the (User-)Innovation. The case of Big Buck Bunny.

Massimiliano Gambardella

EconomiX, University Paris Ouest &
Orange Labs
200, avenue de la République
92000 Nanterre, France
+33 (0) 1 40 97 59 07

massimiliano.gambardella@gmail.com

ABSTRACT

It seems a non-sense for an economist that a producer assembles, manages and pays a temporary team of experts to create a product that will be freely available for customers. It seems a non-sense that professional artists and developers decide to work underpaid. It seems a further non-sense that customers decide to pre-order (or order) and pay for a DVD copy of this movie despite they know that it will be (or it is already) freely available (by download) and freely recordable. To understand why it happens, we conducted a case study focused on the production of the movie called Big Buck Bunny. Than, using Creative Commons and User-Innovation theory we propose a model that explains how a producer can manage Intellectual Propriety Right and community of users to identify needs and absorb innovations.

Keywords

User-Innovation, Creative Commons, Crowdfunding, Co-creation.

1. INTRODUCTION

It seems a non-sense that a producer decides to invest in a different industry without an advantage.

It seems a non-sense that a producer assembles, manages and pays a temporary team of experts to make a complete product that will be freely available, out of copyright protection and it can be edited, distributed and marketed by others.

It seems a non-sense that a group of experts decide to work underpaid.

It seems a non-sense that customers decide to pre-pay for a product despite they know that it will be freely available.

This is exactly what happened with the production of the *Big Buck Bunny* (BBB) movie. BBB was licensed under the Creative Commons license Attribution (CC-by), meaning that it is possible to copy, modify and market this movie. The Blender Foundation (producer of the 3D software called Blender) and its Community of Users organized and sponsored the underpaid team of expert that produced BBB.

The aim of this paper is to solve this puzzle. We ask: why a producer decides to create a quasi-public good that does not correspond to the classical products of his industry? How he managed to obtain experts underpaid and funds from Users' Community?

We define "quasi-public good" a good under unrestrictive Intellectual Property Right (IPR) regime because they acquire both non-rival and non-excludable characteristics. Indeed they could be used, modified, copied and distributed by all the people.

In this study we propose a model that explains why a producer decides to create a quasi-public good that does not correspond to the classical products of his industry and how he manages to obtain funds and underpaid experts from Users' Community. Finally this model suggests how both the producer and the users get benefit from this production.

Three steps compose the model:

- Fist step: the producer decreases the IPR control in order to attract funds and underpaid experts from Users' Community.
- Second step: the producers create Team of experts and offer them a refund to produce a product that does not correspond to the classical products of his industry.
- Third step: thanks to the work of the Team, the producer is able to absorb users' needs and innovations developed in another industry.

Our analysis offers important intuitions concerning the changing role of the users[1]. Although users are usually considered at the end of the production-chain, they start to be used as source to financing the production (Belleflamme, Lambert, & Schwienbacher, 2011; Lambert & Schwienbacher, 2010; Ordanini, Miceli, Pizzetti, & Parasuraman, 2011; Schwienbacher & Larralde, 2010), such as partners in vertical integration (Jeppesen & Molin, 2003; von Hippel & Katz, 2002) and as source of innovation (Lundvall, 1985; Urban & Von Hippel, 1988; von Hippel, 1988, 2009).

This analysis is important to understand the use of unrestrictive IPR, particularly the emergent use of Creative Commons (CC) licenses, as a tool to attract and manage Users' Community contributions and effort (Carroll, 2006; Gambardella, 2011). Moreover we investigate the strategies to create new products (Foong, 2010).

This research contributes to explain the roles of users and unrestrictive licenses (such as Creative Commons licenses) as source of innovation.

In this paper, using the *User-Innovation* theory (Haefliger, Jäger, & von Krogh, 2010; von Krogh, Haefliger, & Jaeger, 2008) that explain how users cross entry barriers from an industry to another and how they introduce innovations, we propose a model that

---

[1] We prefer to use the word "user" despite "consumer", "customer" or "client" because in the digital environment you do not consume the product and you are not really a customer or client.

explain how a producer can manage IPR and community of users to identify needs and absorbs innovations from another industry.

The paper is structured as follows. Section 2 presents the relate literature. Section 3 presents the case study and data collection. Section 4 presents the model. Finally, Section 5 presents the conclusions.

2. RELATE LITERATURES

2.1 User-Innovation and Co-creation

The innovation is an important challenge for a producer and the ability to produce innovation represent a fundamental skill.

User-Innovation theory describes and explains how user-innovations are organized. Users are usually considered at the end of the value chain, but now, because the increasing digitization of contents, users are able to by-pass the entry barriers of market and create new and innovative contents, as from scratch, as mixing and combining other works (Lerner & Tirole, 2002; von Hippel, 1988, 2005). Scholars have studied for decades the users-lead innovation and recently as been increased the interest in this phenomenon, also because of the Free/Open Source phenomenon.

Users often innovate, indeed from 10% to 40% of users have developed new products in diverse industry (Von Hippel, 2007). This is not surprising, because information regarding users need' and possible innovations can be located and easily accessible at user-level (von Hippel, 1994, 2007).

Users can innovate in different areas and innovative-users can be professional or not (Jeppesen & Frederiksen, 2004; Shah, 2000). Users tend to organize their innovations process using Communities of Users (Shah, 2000; Von Hippel, 2007; von Krogh et al., 2008).

In order to across entry barriers from an industry to another, high investments into fixed costs, such as production facilities, are required. Users, frequently with a small amount of finance, are usually not considered as potentials candidates for market entry (von Krogh et al., 2008). Consequently communities of users, networks and related institutions (foundations, non-profit organizations, etc.) are not considered as potentials candidates for market entry too.

Recently the interest concerning the cooperation between communities of users and firms increased (Rossi & Bonaccorsi, 2005). Users can share innovations, best practices and technologies among different industries. The *Horizontal User-Innovation* theory is a model of industry entry process in two phases that allow user-lead product to across the entry barriers (von Krogh et al., 2008), under the supervision of an incumbent organization (Haefliger et al., 2010).

The *co-creation* is a novel approach in with the user is considered not only as a source of innovation, but also as a partner in the innovation process (Roberts, Baker, & Walker, 2005). Indeed a collective users effort could be used to reduce the risk of new project development and avoid costly failures (Ogawa & Piller, 2006), as well to understand users' needs and to absorb users' innovations (von Hippel & Katz, 2002).

2.2 Crowdfunding and Crowdsourcing

The concept of *crowdfunding* is directly derived from the concept of *crowdsourcing*. The basic idea of *crowdsourcing* is to collect feedback from a large audience (the crowd) of users in order to create a product (Brabham, 2008; Kleemann, Voß, & Rieder, 2008). A classical example of *crowdsourcing* is the Free/Open Source software, in witch a large amount of users work together in order to create software under a particular set of licenses that allow people to use, modify and distribute the product, under the condition to put derivative works under the same license.

Instead to have feedback or source-code, the *crowdfunding* aims to use "the crowd" to raising money from it.

Motivating people to funding a project of a free available product in absence of financial returns is a management challenge for a producer.

Crowdfounding is different from the classical funding system, in witch a small group of sophisticated investors funds a project. In the case of *crowdfunding* is a large group of people that funds a project. In this group each individual contribute with a very small amount of money to finance the project (Lambert & Schwienbacher, 2010; Ordanini et al., 2011).

2.3 Creative Commons Licenses

All organization structures are based on formal institutions that have to be: understandable, accepted and shared by all those who interact (Hess & Ostrom, 2005). The formal institution associated with the BBB movie project is the *open license* called Creative Commons Attribution 3.0 license (CC-BY). Shortly, this means that it is possible to share (copy, distribute, etc) and to adapt the work (reuse, create derivative works, remix, use as raw material, etc), also commercially, for as long is provided a proper attribution. This concept and consequently CC licenses are derived from the Free/ Open Source Software (F/OSS) movements and its most diffused *Open license*: the GNU General Public License (GNU GPL) (Lessig, 2001, 2004). Both GNU GPL and CC license limit the power of standard copyright, allowing producer to share some right (particularly: reproduction and modification) with users.

Despite a huge amount of literature concerning the Free/Open Source, this particular formal institution, the *Creative Commons* license, has not been deeply analyzed in literature and offers new opportunities and directions for investigation and analysis from different point of view: economics, management, juridical, sociology and others, which will require an interesting amount of future researches.

3. CASE STUDY AND DATA COLLECTION

For the purpose of the paper we conducted a case study focused on the production of the movie called *Big Buck Bunny (BBB)*. *BBB* is one of the most successful movies produced with the support of an online community. BBB is licensed under the most open CC license (CC-BY). The *Team* that created BBB was sponsored and organized by the *Blender Foundation*. The *Blender Foundation* is a non-profit independent organization acting to maintain and improve *Blender* and creates services for its users and developers. *Blender* is a Free/Open Source 3D computer graphics software product. *Blender* is used to create animated films, visual effects, interactive 3D applications or video games.

We organized our qualitative data collection from a variety of data sources (Yin, 2003). Using multiple data sources is important because it guarantees the possibility to collect the different perspectives required by a qualitative analysis of this type of phenomenon (Ordanini et al., 2011).

We collect both face-to-face interview and data from Blender website[2], press reports, and other public sources. We also analyze

---

[2] http://www.blender.org

the evolution of the software Blender to check updates and innovations before and after the BBB creation.

The semi-structured interviews constitute the starting point of our study. We performed in a qualitative data analysis of 15 interviews. We interviewed selected members of the Blender Foundation, of the Team that creates BBB and of the Blender Community in occasion of the Blender Conference 2008 in Amsterdam.

11 interviews are in English and 4 in Italian. 11 interviews are around 15min and 4 are around 50 min (1 in Italian and 3 in English).

We interviewed Ton Rosendaal (46min 10sec), the leader of the Blender Community and founder of the Blender Foundation. Rosendaal was also member of the Team with the role of Producer. In total we interviewed 3 of 9 members of the Team. In addition to Rosendaal we interviewed Enrico Valenza, the Lead artist, and Andy Goralczyk, the Art director.

We have also interviewed a member of the Team that created the video-game Apricot, a spin-off of BBB – Pablo Vasquez. The others interviews were released by simple casually selected members of the Blender Community.

Excepted Ton Rosendaal, nobody worked permanently for Blender Foundation.

According with the "Grounded Theory" approach (Eisenhardt, 1989), already used in similar analysis (Ordanini et al., 2011), our *bottom-up* strategy and the total number of respondents were sufficient to authorities a coherent analysis (Glaser & Strauss, 1967).

The Team consists of 9 selected creators - 6 artists and 3 developers - that worked fiscally together, because *"they have not only developers, but also artists. Creative people want to be together, technical people they don't mind" (Rosendaal)*. The Team worked for 6 month in Amsterdam, and a multitude of sponsors pre-paid the final product. It was also possible to be a donor and to have the name mentioned in the credits (30€ or more) or mentioned as main sponsor (250€ or more). The member of the team, with different roles, tasks and skills, coming from various parts of the world (see table 1), received only a reimbursement of expenses for travel and accommodation.

Table 1. The Members of the Team: Roles and Nationalities

Name	Role	Tasks	Nationality
Sacha Goedegebure	Director	- Story and screenplay - Storyboard artist - Character designer - Animatic editor - Character animator	Netherlands
Andy Goralczyk	Art director	- Character modeler - Character animator - Texture painter - Environment modeling and shading - Fur and feathers - Shading, lighting, compositing - Graphics design (web, dvd)	Germany
Enrico Valenza	Lead artist	- Storyboard artist - Color guide artwork - Animatic editor - Character animator - Matte and texture painter - Environment design, layout, modeling and shading - Environment and props animation	Italy
Nathan Vegdahl	Rigger & Animation	- Character animation - Character rigging - Environment and props animation - Compositing	USA
William Reynish	Animator	- Character animation - Animatic editing	Denmark
Brecht Van Lommel	Technical Director	- Software development, support & bug fixes - 3D tools and rendering development, - Hair, grass and environment rendering software	Belgium
Campbell Barton	Technical Director	- Software development, support & bug fixes - Scripting & tools - Tree modeling and scripting - Environment and props animation - Render wrangler - Studio pipeline	Australia
Jan Morgenstern	Music and sound design	- Sound effects, foley design, audio mixing and post-production	Germany
Ton Rosendaal	Producer	- Project realization, finances, planning - Software development, scheduling	Netherlands

The movie *Big Bug Bunny* produced and distributed by *Blender Foundation*, and supported by *Blender Community*, offers an ideal context to explore how the user-innovation can be organized, led and absorbed because:

- It give us the possibility to observe a producer of software, supported by a community of users, at the time of his entrance in the movie industry;
- The Team was able to make a movie, despite the high entry barriers that traditionally characterized the animation industry;
- It is possible to analyze the strategies used by Blender Foundation and its Community to sustains their business model;
- It is useful to understand the motivation to create, funding and participate to a production of a free available and quasi-public good.
- It gives us the possibility to observe the *horizontal user-innovation* from software industry to movie industry.
- It gives us the possibility to observe the absorption of *user-innovation* and users' needs from movie industry to software industry.
- It gives us also the possibility to study how economic actors manage IPR using CC licenses.

4. MODEL: A THREE-PHASES PROCESS OF INNOVATION

In this section we propose a model (fig. 1) created starting from the findings on how, in the case of BBB, users became innovators and how was possible to start, manage and absorb this innovation.

The first phase consist on vertical movement from a strong IPR regime to an open IPR regime. This vertical movement could be done in a more or less "tolerated" illegal way in case of hacking (Haefliger et al., 2010) or in a legal way in case of "Open Licenses" such as GNU-GPL, in case of Free/Open Source Software (Lerner & Tirole, 2004, 2005; San Wong, 2007), and CC licenses (Cassarino & Geuna, 2007; Gambardella, 2011; Lessig, 2004). By decreasing IPR restrictiveness using CC licenses, a producer starts to attract users' efforts (Gambardella, 2011). A collective users effort can be used to avoid costly failures (Ogawa & Piller, 2006) by collecting fund (Belleflamme et al., 2011; Kleemann et al., 2008; Lambert & Schwienbacher, 2010; Ordanini et al., 2011; Schwienbacher & Larralde, 2010) and

underpaid/voluntary work (Brabham, 2008; Kleemann et al., 2008; Schenk & Guittard, 2009) from the Users' Community.

The total budget was around 150.000€[3].

To attract users' efforts, particularly funds and underpaid experts, Blender Foundation decides to use the most open CC license (CC-BY).

"We always use Creative Commons Attribution for our projects, so people can re-use our work fully free, even for commercial reasons. The Blender community is our investor, so we should allow them to do business with our work!" (Ton Rosendaal)

Figure 1. A three-phase process of innovation
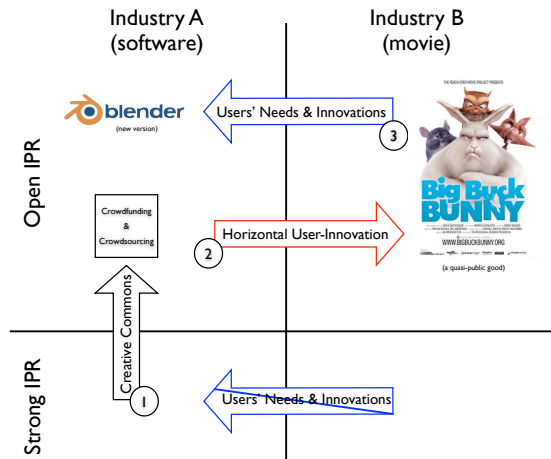
The second phase consists in a horizontal movement from one industry to another "under the radar" of the producer (Haefliger et al., 2010). Users are often used as source of innovation (von Hippel, 1988, 2005, 2009; von Hippel & Katz, 2002). Producer organizes and sponsors a Users' Team to innovate (Dahlander & Magnusson, 2008; Jeppesen & Frederiksen, 2006; West & Gallagher, 2006) and co-operate (Jeppesen & Molin, 2003). In our case Blender Foundation organizes and sponsors the Team formed by intermediary-users and developers. All the members were selected into the Blender User' Community. The Blender Users' Community participates to the project in two ways. First it represents the source of underpaid experts (crowdsourcing), both artists and developers. Second it funds the project by pre-paying the final product (crowdfunding). Producing the BBB movie, the Team was able to move from the domain of the software industry to enter, produce and innovate in the domain of the video industry: the *horizontal user-innovation*.

The third phase consists in the capability to identify and absorbs users' needs and innovations. Indeed the Users' Team can be used and integrated (Füller, Bartl, & Ernst, 2006) to identify needs (Jaworski & Kohli, 2006), innovate (Roberts et al., 2005; von Hippel, 1988, 2005) develop new products (Füller et al., 2006; Herstatt & Hippel, 1992; Jeppesen & Molin, 2003; Urban & Von Hippel, 1988) and absorbs this innovations (von Hippel & Katz, 2002).

Working together artists and developers are able to understand each other. Than by using the Team consisting of both artists and developer, the producer is able to absorb and integrate the experience of the using of its software, shifting innovation from the industry of video, in which the product is used, to the industry software, in which the software is created.

5. DISCUSSION AND CONCLUSION

The case studied in this paper is a clear case of economics of free revealing of innovation-related information (Von Hippel, 2007). Indeed Blender Foundation uses *open licenses*, GNU GPL for the software and CC-BY for the video, because they benefits from free revealing the "source" more than the using of the standard property right. Indeed using classical IPR Blender Foundation will be not able to collect contribution and funds from the community.

Two different communities form the whole Blender community: (1) the Blender Developers and (2) the Blender Artists. Developers are the contributors to the development of the Blender software, a 3D computer graphic product. Using this product artists create animated films, visual effects, interactive 3D applications or video games. We define artists as intermediate-users. Intermediate-users are the users that use some goods and services to produce other goods and services. Intermediate users are often the source of the innovation in many industries (Bogers, Afuah, & Bastian, 2010).

The members of the two communities, than artists and developers, are not really able to communicate each other, because artists and developers have different background, priorities and standard to communicate. Than a team of artists and developers that work together to produce a movie was made to avoid this problem.

Indeed as resulted of the BBB project: a "Bunny release" of Blender software (Blender 2.46 release) was made. To meet the needs of artists emerged during the project, many innovations were developed and introduced in this release: a new hair and fur tool, a faster fur rendering, a new mash deformation system, cloth simulation and more other features[4].

According to our interviews: most artists did not care of licenses in their general production of goods and consequentially they used the copyright for their own products. Exceptions were one artist that used Creative Commons and another one that used Public Domain because the University commanded his products. This supports the hypothesis that the majority of artists generally use Blender software to produce a marketable final product.

According with Dolf Veenvliet and Ton Rosendaal, an artist can become a developer because he needs to create tools himself and almost never it happens in the other way around.

"I have a degree in arts. I want tools to do things otherwise impossible. So you have to create your own tool." (Veenvliet)

This observation reveals the existence of an asymmetry of knowledge between artists and developers. Indeed an artist may feel the need to improve himself the software according to its needs. This supports the hypothesis that to improve the software it could be fundamental to reduce this asymmetry of knowledge by collecting the requirements of artists and translating them to developers.

In case of BBB, users fund the production because they are motivated by *intrinsic motivations*

---

[3] half the cost was funded by the Dutch government.

---

[4] See http://www.blender.org/development/release-logs/blender-246/ to have the complete list of upgrade and new features

"I like Blender. I like the background, the philosophy behind it. The sharing. Everything should be open. No constraint. You should be done whatever you want." (Velasquez)

and *extrinsic motivations*

"Aver fatto Big Buck Bunny è stata una grande esperienza. Fondamentalmente imparare sul campo come si fa un film. Quello che abbiamo cercato di fare è stato quello di seguire una pipeline professionale, quella che usano i grandi studios. Mi ha anche dato molta visibilità dal punto di vista professionale."[5] (Valenza)

but, according with all the interviewed, mainly because they want to capitalize a common effort to improve and innovate the Blender software, because they need it for their works.

An important aspect of management of innovation is how to identify and absorb external innovation (West & Gallagher, 2006) and how to stimulate the user-innovation.

In this paper we argue that Blender Foundations by using CC license is able to create and manage a users-innovation in order to increase and innovate their product.

6. REFERENCES

Belleflamme, P., Lambert, T., & Schwienbacher, A. 2011. Crowdfunding: Tapping the Right Crowd. 1-39.

Bogers, M., Afuah, A., & Bastian, B. 2010. Users as Innovators: A Review, Critique, and Future Research Directions. *Journal of Management*, 36(4): 857-875.

Brabham, D. C. 2008. Crowdsourcing as a model for problem solving. *Convergence: The International Journal of Research into New Media Technologies*, 14(1): 75.

Carroll, M. W. 2006. Creative Commons and the New Intermediaries. *Michigan State Law Review*, 2006: 45-65.

Cassarino, I., & Geuna, A. 2007. Remixing Cinema: The case of the Brighton Swarm of Angels. *ideas.repec.org*.

Dahlander, L., & Magnusson. 2008. How do firms make use of open source communities? *Long Range Planning*.

Eisenhardt, K. M. 1989. Building theories from case study research. *Academy of MAnagement Review*, 14(4): 532-550.

Foong, C. 2010. Sharing with Creative Commons: a business model for content creators. *Platform: Journal of Media and Communication*, Yes, We're Open! Why Open Source, Open Content and Open Access. A Creative Commons Special Edition (December) ISSN: 1836-5132 Online © Creative Commons Attribution 2.5 Australia Licence: 64-93.

Füller, J., Bartl, M., & Ernst, H. 2006. Community based innovation: How to integrate members of virtual communities into new product development. *Electronic Commerce Research*.

Gambardella, M. 2011. The Scope of Open Licenses in Cultural Contents Production and Distribution. *EconomiX Working Papers, University of Paris West - Nanterre la Défense, EconomiX*, 26.

Glaser, B., & Strauss, A. 1967. The Discovey of Grounded Theory. *Aldine Publishing Company, Hawthorne, NY*.

Haefliger, S., Jäger, P., & von Krogh, G. 2010. Under the radar: Industry entry by user entrepreneurs. *Research policy*.

Herstatt, C., & Hippel, E. v. 1992. From experience: Developing new product concepts via the lead user method: A case study in a. *Journal of product innovation management*.

Hess, C., & Ostrom, E. 2005. A Framework for Analyzing the Knowledge Commons: a chapter from Understanding Knowledge as a Commons: from Theory to Practice. *surface.syr.edu*.

Jaworski, B., & Kohli, A. 2006. Co-creating the Voice of the Customer. *The Service-Dominant Logic of Marketing: Dialog, Debate and Directions. Armonk, New York: M.E. Sharpe.*

Jeppesen, L. B., & Frederiksen, L. 2004. Why firm-established user communities work for innovation. *openarchive.cbs.dk*.

Jeppesen, L. B., & Frederiksen, L. 2006. Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments. *Organization Science*.

Jeppesen, L. B., & Molin, M. J. 2003. Consumers as co-developers: Learning and innovation outside the firm. *Technology Analysis Strategic Management*, 15(3): 363-383.

Kleemann, F., Voß, G. G., & Rieder, K. 2008. Un(der)paid Innovators: The Commercial Utilization of Consumer Work through Crowdsourcing. *Science, Technology & Innovation Studies*, 4.

Lambert, T., & Schwienbacher, A. 2010. An Empirical Analysis of Crowdfunding. *SSRN Working Paper Series*.

Lerner, J., & Tirole, J. 2002. Some simple economics of open source. *The journal of industrial economics*, 50(2): 197-234.

Lerner, J., & Tirole, J. 2004. The Economics of Technology Sharing: Open Source and Beyond. *Negotiation, Organizations and Markets Research Papers Harvard NOM Research Paper No. 04-35*.

Lerner, J., & Tirole, J. 2005. The Scope of Open Source Licensing. *Journal of Law, Economics, and Organization*, 21(1): 20-56.

Lessig, L. 2001. The Future of Ideas: The Fate of the Commons in a Connected World.

Lessig, L. 2004. Free culture: How big media uses technology and the law to lock down culture and control creativity. *books.google.com*.

Lundvall, B. 1985. Product innovation and user-producer interaction. *vbn.aau.dk*.

Ogawa, S., & Piller, F. 2006. Reducing the risks of new product development. *MIT Sloan management review*.

Ordanini, A., Miceli, L., Pizzetti, M., & Parasuraman, A. 2011. Crowd-funding: transforming customers into investors through innovative service platforms. *Journal of Service Management*, 22(4).

Roberts, D., Baker, S., & Walker, D. 2005. Can We Learn Together?'. *International Journal of Market ….*

Rossi, C., & Bonaccorsi, A. 2005. Why profit-oriented companies enter the OS field?: intrinsic vs. extrinsic incentives. *Proceedings of the fifth workshop on Open source software engineering*: 1-5.

San Wong, M. W. 2007. User-Generated Content & the Open Source/Creative Common Movements: Has the Time Come for Users' Rights?

Schenk, E., & Guittard, C. 2009. Crowdsourcing: What can be Outsourced to the Crowd, and Why?

Schwienbacher, A., & Larralde, B. 2010. Crowdfunding of small entrepreneurial ventures. *Book chapter forthcoming in Handbook of Entrepreneurial Finance (Oxford University Press)*: 1-23.

Shah, S. 2000. Sources and patterns of innovation in a consumer products field: innovations in sporting equipment. *MIT Sloan Working Paper No. 4105*.

Urban, G. L., & Von Hippel, E. 1988. Lead user analyses for the development of new industrial products. *Management Science*.

---

[5] *"Big Buck Bunny was a great experience. Basically I learned how to make a film. We tried to follow a professional pipeline, similarly to the pipeline used by big studios. I also got a lot of visibility from the professional point of view."*

von Hippel, E. 1988. The sources of innovation. *Oxford University Press, New York*: 218.

von Hippel, E. 1994. " Sticky information" and the locus of problem solving: Implications for innovation. *Management science*.

von Hippel, E. 2005. Democratizing Innovation. *The MIT Press*: 224.

Von Hippel, E. 2007. Horizontal innovation networks—by and for users. *Industrial and corporate change*.

Von Hippel, E. 2009. Democratizing innovation: the evolving phenomenon of user innovation. *International Journal of Innovation Science*.

von Hippel, E., & Katz, R. 2002. Shifting innovation to users via toolkits. *Management science*.

von Krogh, G., Haefliger, S., & Jaeger, P. 2008. User-innovation Beyond Market Barriers: The Case of Machinima. 40.

West, J., & Gallagher, S. 2006. Challenges of open innovation: the paradox of firm investment in open-source software. *R&D Management*.

Yin, R. K. 2003. Applications of case study research. *Applied Social Research Methods Series, 2nd ed.*, 34(Sage Publications, Thousand Oaks, CA).

Annex

The survey:

- Name
- Age
- Nationality
- Address
- Are you member of the team?
- Education
- Job
- Why you decide your work?
- Do you make movies?
- What's the size of you team?
- What's the type of your company
- What's your role in the team?
- Are you in Blender Community?
- How much time do you spend in the Community?
- When you start in the Community?
- Does the artist become developers or vice-versa?
- Does exists two different Communities? (artists and developers)
- Do they work online?
- What license do you use? Why?
- Do you use CC material as raw material?
- What's your budget? Time?
- How do you make money?
- Who decide?
- Why this film?
- Who give you money?
- Who pre-buy the DVD?
- Who are potential client?
- What's your business model?
- Why do you participate to the project/community/use blender/buy DVD?
- Do you want to create a new model to sell a film?