Abstract

This paper aims to generate insights on how intellectual property in a crowdsourcing environment is managed and to suggest future fields of research as well as to provide a guideline for practitioners. A vast number of authors highlight the problem of confidentiality and IP protection in crowdsourcing (cf. Trompette, Chanal, and Pelissier, 2008; Avenali, Battistella, Matteucci, and Nonino, 2012; Botterbusch and Parker, 2008; Fantoni, Apreda, Valleri, Bonaccorsi, and Manenti, 2009; Feller, Finnegan, Hayes, and O'Reilly, 2012; Schenk and Guittard, 2009). Since, the varieties of stakeholders, tasks and mediation have different needs towards IP rights different approaches of how IP is handled are needed. The question how IP in crowdsourcing is actually managed by different web-based platforms remained unanswered by literature up to date. This paper is a first attempt to gain a better understanding on how intellectual property is approached by web-based platforms in different contexts.

Because of the early stage of the research field a qualitative, inductive 'case study' approach was chosen. The data was gathered in a "one-shot design" (Jupp, 2006) during a period of six months using a mixed methods approach.

The results highlight, that different approaches to capture IP and IP transfer models can be observed, not only across different crowdsourcing challenge types but also within one challenge type. Five generic intellectual property approaches were found and four IP transaction models identified: Connector, Escrow, Payment Processor and Standalone.

The findings provide new theoretical insights by combining different areas of theory with empiricism and recommendations for managers. This study clarifies that there is no one-size fits all approach and sensitize practitioners for the role of IP in crowdsourcing activities. It indicates that each requester has to determine a suitable IP approach with regard to the challenge type and through what IP transfer model this can be put into action the best.

Keywords: Crowdsourcing, Open Innovation, Intellectual Property, Value Appropriation

1 Introduction

The traditional approach for companies to generate knowledge is within the organization individual, team and units level (Avenali, Battistella, Matteucci, and Nonino, 2012). However, the organizational boundaries are pushed more and more to harness the potential of knowledge generation from the outside (Chesbrough, 2003b; Chesbrough, 2003a; Gassmann and Bader, 2006). Crowdsourcing offers such potential. Thereby companies and institutions use the web 2.0 to get access to a virtual crowd's knowledge and skills. Crowdsourcing is not only used for commercial purposes but also for non-commercial (Marjanovic, Fry, and Chataway, 2012). Not only the purpose for crowdsourcing but also the stakeholders and tasks vary in crowdsourcing. The tasks can range from simple data gathering tasks to complex problem solving. Furthermore, the crowd is approached by multiple ways. Some companies set up their own platforms, while others use intermediaries (Trompette, Chanal, and Pelissier, 2008).

The use of crowdsourcing to gain knowledge challenges the traditional approach to intellectual property rights. Intellectual property (in the following "IP") gets exchange across companies' boundaries and spread to a wider space. The risk of competition accessing it and potentially losing a competitive advantage is present for companies actively using crowdsourcing (Ramos, de Souza, Mourão, Adams, and Silva, 2012). The inability to capture the value created by the crowd is higher than in the traditional knowledge generation processes within the companies' boundaries (Trompette, Chanal, and Pelissier, 2008).

To harness the advantages of the crowdsourcing effectively, risks such as loss of intellectual property have to be minimized. The IP created by the crowd does not automatically belong to the requester. Gassmann (2013) states that in order to capture the value created, the requester must get ownership or exploitation rights of the knowledge or solution created in a crowdsourcing challenge. Clear rules on how the intellectual property exchange is approached have to be established by the crowdsourcing platforms (Nari, Soili, and Huhtilainen, 2010, p. 1).

A vast number of authors highlight the problem of confidentiality and IP protection in crowdsourcing (cf. Trompette, Chanal, and Pelissier, 2008; Avenali, Battistella, Matteucci, and Nonino, 2012; Botterbusch and Parker, 2008; Fantoni, Apreda, Valleri, Bonaccorsi, and Manenti, 2009; Feller, Finnegan, Hayes, and O'Reilly, 2012; Schenk and Guittard, 2009). Since, the varieties of stakeholders, tasks and mediation have different needs towards IP rights different

approaches of how IP is handled are needed (Avenali, Battistella, Matteucci, and Nonino, 2012). The question how IP in crowdsourcing is actually managed by different web-based platforms remained unanswered by literature up to date. This paper is a first attempt to gain a better understanding on how intellectual property is approached by web-based platforms in different contexts.

2 Literature review

Crowdsourcing is understood as an act of a company or institution of outsourcing any tasks of intellectual property creation to an external crowd through a web 2.0 infrastructure (i.e. platform) in form of an open or semi-open call (Oliveira, Ramos, and Santos, 2010, p. 413; Gassmann, 2013, p. 6).

Up to now research was mainly concerned with crowdsourcing as potential for Open Innovation (Gassmann, 2013, Lakhani and Panetta, 2007), the reward and incentive system (Bogers, Bekkers, and Granstrand, 2012; Ramos, de Souza, Mourão, Adams, and Silva, 2012; Vukovic and Bartolini, 2010; von Hippel and von Krogh, 2003), the collaboration system (Wolfson and Lease, 2011; Hartnell, 2010; Saxon, Oh, and Kishore, 2013; Ramos, de Souza, Mourão, Adams, and Silva, 2012) and confidentiality (Kee, 2010; Chanal and Caron-Fasan, 2010; Schenk and Guittard, 2011). In the following some of the main findings and statements,

Wolfson and Lease (2011) have revealed legal issues of patent rights and copyright with regard to co-ownership and found that employment laws are a "grey area" in crowdsourcing. Adda and Mariani (2013) and Felstiner (2011) raised the issues of employment laws in crowdsourcing too. Hagman and Sonde (2011) also contributed to the employment law discussion. However from another perspective. Instead of seeing the problem in solvers that could possibly be declared as employers of the requesters (Wolfson and Lease, 2011; Adda and Mariani, 2013), they rise the problem that the actual employers of the solvers could raise an interest into the solution provided to a requester. And thus, requesters could risk not capturing the value of the created IP.

Kee (2010) mentioned another problem that could occur in crowdsourcing: patentability of the solutions. He/she suggests using non-disclosure agreements to protect inventions from losing their novelty status. Ramos, de Souza, Mourão, Adams, and Silva (2012) state another issue that involves confidentiality. They found that requesters possibly must release sensitive information

to the solvers, which they need to solve the problem. However this raises the risk, that the sensitive information and IP is disclosed to unauthorized parties, such as competitors. Chanal and Caron-Fasan (2010, p. 29) state that this risk can be minimized by restricting the level of collaboration. One restriction mechanism is to let solvers work on the problem only individually, i.e. blind/no collaboration. Another restriction mechanism can be agreed-upon team members working together on solutions in confidential team project rooms, i.e. allowing partial collaboration. Trompette, Chanal, and Pelissier (2008) found that "... setting up of private spaces also highlights the problem of confidentiality and IP protection for individual contributors as well as for companies" (p. 15).

The compensation scheme for rewarding the crowd is depending on the project type. The types of incentives used can be differentiated between financial and non-financial (Vukovic and Bartolini, 2010). Trompette, Chanal, and Pelissier (2008) found that the financial awards vary according to the type of project, from micro-payments for micro tasks and profit sharing to payments of million dollars for complex projects. Financial payments in crowdsourcing are often considered as a simple bonus or revenue. However the contributions of solvers can have a significant value creation, from which the seeker can profit. Therefore the contributors' interest for profit sharing rises when IP is transferred.

Most studies are concerned with the mechanisms of crowdsourcing but the IP approaches were widely neglected so far, despite its undeniable importance. In the following I summarize the major research which included IP.

Wolfson and Lease (2011) recommend in their study that to not accidently lose control over the intellectual property and to avoid problems arising from joint ownership in crowdsourcing, contracts should be used to clearly define the interests similar to this is done in other forms of collaborations. For instance in R&D Collaborations the partners agree upon how intellectual property created during collaboration is managed in an early stage of the collaboration process (Gassmann and Bader, 2006). Schenk and Guittard (2009) found that IP in crowdsourcing is differently managed in profit and non-profit and non-profit challenges. Harhoff, Henkel, and von Hippel (2003) highlight that in profit challenges IP is transferred to the requester, whereas in non-profit challenges IP is placed in public domain becoming "freely revealable". Kee (2010) however, mentions that IP can also be shared under an open license, which allows for certain restricted use of the solution provided (Kee, 2010). Such restrictions can be: prohibition to sub-

license or resell, limitation of geographical area, field of application, time or mode of commercialization (Bogers, Bekkers, and Granstrand, 2012). Gassmann found that contributors of crowdsourcing prefer to have a restricted transfer of rights, for fairness reasons (Gassmann, 2013).

Despite the revealingly stated conclusion in literature, that IP has to be considered as a fundamental element of crowdsourcing, since it not only protects companies as well as individuals, but also promotes exchange and communication (Avenali, Battistella, Matteucci, and Nonino, 2012, p. 4), research on how IP is actually approached by crowdsourcing platform is not yet conducted.

The aim of this paper is to address this research gap.

3 Methodology

Multiple cases are described and cross-analyzed to find answers to the research questions stated earlier. The empirical analysis has an inductive logic. The following chapters describe the research approach, the data collection and data sample as well as the data analysis.

Because of the early stage of the research field a qualitative, inductive ‘case study’ approach was chosen (Yin, 2003). The inductive approach allows the identification of patterns, by making observations, comparing them to existing literature and drawing conclusions (Eisenhardt, 1989; Vogel, 2009). For the qualitative research method, the cases analyzed are set up in an identical structure to provide better comparability. The purpose of the research is descriptive combined with some explanatory elements. “As its name suggests, descriptive research seeks to provide an accurate description of observations of a phenomena ... at a particular point in time. The objective of much descriptive research is to map the terrain of a specific phenomenon” (Harvard University, 2012). “Descriptive studies are aimed at finding out "what is” (Knupfer and McLellan, 2001). This applies for this research objective.

The data was gathered in a “one-shot design” (Jupp, 2006) during a period of six months between using a mixed methods approach. The selection of the platforms was done based on the platforms described from Gassmann (2013) and the overview provided by the platform ‘Open Innovators’ (n/a). Only crowdsourcing platforms on which IP is created were selected for the data sample. Platforms which only trade IP, i.e. sell and buy, such as NakedandAngry, Open Source Software and platforms for crowdfunding, e.g. Kickstarter, were excluded. The data sample

consists of twenty-eight crowdsourcing platforms (see Table 3). Thirty-six IP policies (e.g. 'Terms of Use and Conditions', 'Solver and/or Seeker Agreements', FAQ, etc.) were retrieved which rule these twenty-eight platforms. To get access to a wide range of documents, a member registration was undertaken on the platforms where it allowed for.

Platform Type	Sub-Type	Platform	Overview	No.
Intermediary	R&D	InnoCentive	R&D Problem Solving	1
		IdeaConnection	Idea Rally, ThinkSpace™, R&D Problem Solving & Marketplace	2
		Hypios	R&D Problem Solving	3
		Innoget	R&D Problem Solving & Marketplace	4
		One Billion Minds	Social Challenges	5
		Ninesights	Technology Problem Partnering Community of NineSigma	6
		Skipso	Cleantech R&D and Idea Challenges, Funding &Marketplace	7
	Ideation	Atizo	Ideation Sourcing	8
		Jovoto	Creative Sourcing	9
		crowdINNO	Ideas & Concepts	10
	Marketing & Design	99designs	Webpage, Print Designs	11
		Idea Bounty	Idea & Marketing Contests	12
	Freelancer	Clickworker (HumanGrid)	Micro Tasks	13
		Amazon Mechanical Turk	Micro Tasks	14
Citizen Science	Problem Solving	Eureka Medical	Medical Problem Solving	15
		Picnic Green Challenge	Sustainable Ideation	16
	Data Gathering	Fold it	Online me Puzzle for Protein Structures	17
		Galaxy Zoo	Space, Climate, Humanities, Nature, Biology	18
Corporate Captive	Ideation	MyStarbucksIdea	Ideas for the future of Starbucks	19
		LEGO Mindstorms	Robotics Ideation	20
		IBM Innovation Jam	Innovation Searching	21
	Designs	Fluevog	Shoe Designs	22
		Threadless	T-Shirt Designs	23
		Electrolux Design Lab	Design Contest for Students	24
	R&D	BMW Via	Ideas for BMW Cars	25
Free Joint Solutions	Website	Yahoo Answers	Q&A	26
		OpenStreetMap	Free Roadmaps	27
		Wikipedia	Free Encyclopaedia	28

Table 3: Data Sample of Crowdsourcing Platforms[1]

[1] Own illustration based on typology Gassmann (2013)

4 Results

4.1 IP Approaches of Requesters

The results highlighted those different approaches with regard to IP transfer can be observed, but only across different challenge types but also within one challenge type. Like in open innovation Chesbrough and Appleyard (2007) also in crowdsourcing 'value creation' and 'value capture' play a major role. Every requester has to capture the value created externally by the crowd by IP transfer. The question is just how much does he/she capture? Within every challenge type analyzed, there are challenges found, which have rather open IP transfer provisions (i.e. open or non-exclusive) and challenges which have a rather closed IP transfer provision (i.e. exclusive) (see Figure 1).

Five types of requesters can be distinguished, according to their IP transfer approach. I will call them: IP Chaser, IP Negotiator, IP Releaser, IP Decontroller and IP Sharer.

4.1.1 *IP CHASER*

IP Chasers claim an exclusive IP transfer by assignment of ownership or by means of license to all rights. They follow a rather closed IP approach - IP ownership is given up by the contributor, and is appropriated by the IP requester and not freely available anymore. IP Chasers ensure, by non-negotiable standard agreements that they get the exclusive rights to the IP, so they can capture the value created by the crowd and fully exploit the solutions' IP. By the exclusive transfer, IP Chasers' requesters gain control over the submission - others get excluded from its use and it enables the requester to enjoy potential future revenues. The payment of the award can be seen as compensation in return for an exclusive IP transfer. IP Chasers mostly attract contributors that see promise of some economic return of their contribution. IP Chasers are most dominating at R&D Challenges. Since to appropriate the results of the activity is mainly vital for innovative requesters. However IP Chasers can also appear in all other challenge types, except at free joint solutions.

Examples of challenges for IP Chasers are: InnoCentive's Technical-Transfer Challenge and RTP (Reduction to Practice) Challenge, IdeaConnection's R&D Challenge, Hypios Winner Solutions, Skipso's R&D Challenge, Atizo, Jovoto, CrowdINNO, IdeaBounty, Clickworker

(Humangrid) and Amazon Mechanical Turk, Foldit, BMW VIA, Electrolux Design Lab and Threadless.

4.1.2 *IP RELEASER*

IP Releasers are a hybrid form of IP Chasers and IP Sharers - they claim IP but only in an unlimited non-exclusive provision. The IP Releaser approach is, with regard to openness, more open than the one of the IP Chaser. IP Releasers combine the main features of the IP Sharer and the IP Chaser: sharing the value created by the crowd and capturing financial benefits from it. Their non-exclusive IP transfer does not exclude others and allows them to compete in the same field. However they capture the value created by the community through using, producing and selling the created solutions. IP Releasers claim a non-exclusive license to the contribution; the contributor can still 'control' the access to the creation. The IP Releaser approach allows the contributor to get some additional economic return, apart from a possible financial reward of the requester for the transfer of a non-exclusive or open license. This may represent an incentive to the contributor. In addition this benefits to the accessibility of the created IP (Winston, 2006). The requester does not control the IP. The contributor still has the possibility to share the IP. This could be a potential threat to the requester, since the contributor can also share the IP with competitors of the requester.

Examples of challenges for IP Releasers are: InnoCentive's Technical-License Challenge, Hypios Runner-up Solutions, IdeaConnection's Idea Rally, Skipso's Idea Challenge, Galaxy Zoo, Yahoo! Answers, MyStarbucksIdea, 99designs.

4.1.3 *IP NEGOTIATOR*

IP Negotiators do use negotiable agreements. However they can make minimal requirements to the potential IP transfer. They aim to capture the value created by the crowd. However to what extend the value is captures has to be negotiated by agreeing on the conditions of the potential IP transfer. In the data sample IP Negotiators only occurred at complex projects, such as R&D Challenges.

Examples of challenges for IP Negotiators are: Innoget, OneBillionMinds, NineSights and BMW Via.

4.1.4 *IP DECONTROLLER*

IP Decontroller claim an IP transfer but only in form of an open license or public domain. Like IP Releasers, they combine sharing the value created by the crowd and capturing financial benefits from it. They capture the value created by the community through producing and selling the created ideas or designs. However their open IP approach does not exclude others. The contributor loses most control of the access to or the use of the creation since it becomes public domain. This benefits to the accessibility of the created IP (Winston, 2006) and makes it freely revealable. The contributors participate voluntarily or for non-financial incentives.

Examples of challenges for IP Decontroller are: LEGO Mindstorms, Fluevog and IBM Jam.

4.1.5 *IP SHARER*

IP Sharers are the mirror image of the control that IP holders traditionally exercise. They use crowdsourcing for value creation, but do not capture the value of the creation by claiming its IP. They crowdsource not for direct commercial or proprietary reasons, rather they encourage to create and share IP. Although requesters do not claim IP, they still benefit from e.g. network externalities (Economides and Katsamakas, 2006). Furthermore "the value of created work can be increased by sharing the work and allowing others to contribute to its development and ... value can be enhanced by such sharing" (Maxwell, 2006). "For instance, the value of OpenStreetMap (OSM) essentially depends on the richness of the geographical content and the possibilities to use OSM data with GPS devices. These contributions mainly stem from individuals, and make the further contribution of the crowd even more likely" (Schenk and Guittard, 2011, p. 11). Contributions to IP Sharers are voluntary. Contributor's motivation to share their IP has various reasons. One of them is altruism. Sharing and feeling to help others gives them personal satisfaction. Also an increased reputation in the community can be an incentive. Furthermore by sharing and thus providing benefits to others, the contributor may also benefit from others as they share (Maxwell, 2006). To stay with the example of OpenStreetMap: A contributor submitting a map of his/her town provides benefits to foreigners not knowing the town, in return the contributor benefits from maps others have provided, e.g. not of his/her hometown. The principal of IP Sharers is that anyone can contribute, as long as they do not try to appropriate. "This is designed to prevent anyone from essentially privatizing [privatizing] the intellectual commons ... the locus of value capture in the innovation chain shifts downward" (Pisano, 2006, p. 1129). However, also IP Sharers cannot act completely detached from IP

policies. They use open licenses to create an exception to the copyright law (Winston, 2006). Thus information can be shared without infringing other copyrights. IP Sharers make information freely revealable, fulfilling the key feature ‘availability’ of openness. Existing and potential IPRs are voluntarily given up by the contributors and the IP Sharer gives interested parties access to it.

Examples of challenges for IP Sharer: Wikipedia and OpenStreetMap.

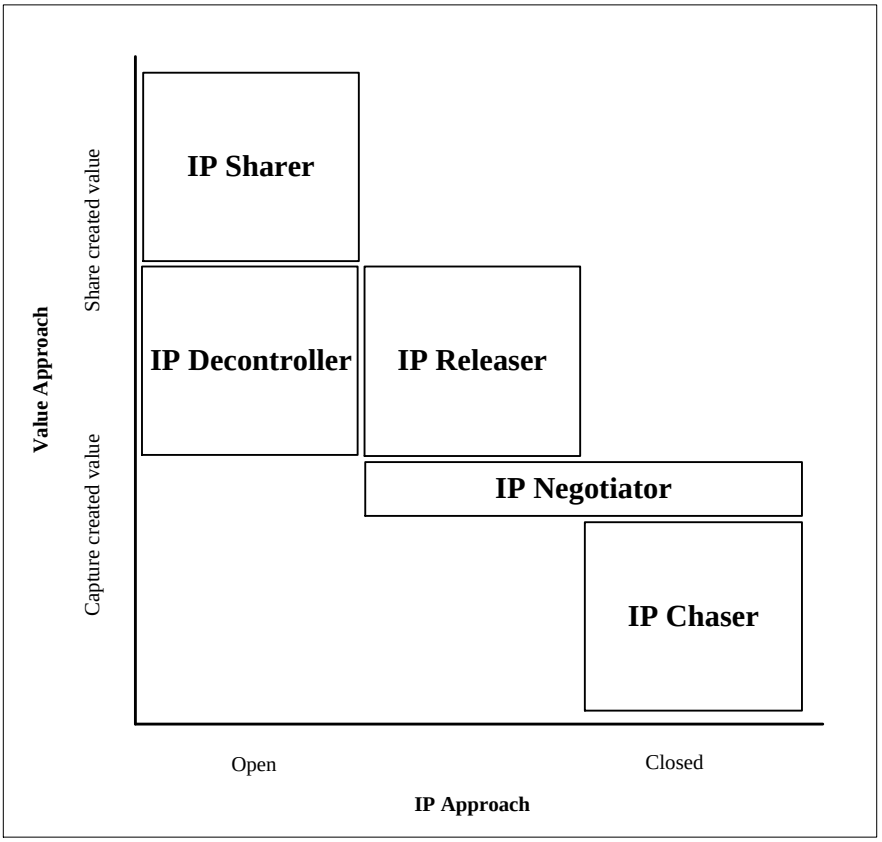

Figure 1 Generic IP Types of Requesters in Crowdsourcing

4.2 IP Transaction Models of Platforms

The analysis not only made clear that platforms use various IP policies, it furthermore revealed that platforms play different roles in the ecosystem consisting of requester, platform and contributor. One role is the Escrow/Broker, which is already well covert by literature, especially with regard to its advantages (c.f. Marjanovic, Fry, and Chataway, 2012; Lopez-Vega and Vanhaverbeke, 2009; Ramos, de Souza, Mourão, Adams, and Silva, 2012; Feller, Finnegan, Hayes, and O’Reilly, 2012). The analysis revealed that the models can be differentiated further, depending on their involvement into IP and award transfers. Therefore the categories “Executer

of award transaction" and "Form of commercialization granted by solver" (see Figure 1) were set into relation. I found four different types of IP and payment transaction models in this analysis: Connector, Escrow, Payment Processor and Standalone.

In the following the nature, challenges and chances of the different IP Transaction Models will be described. At the end I give examples of the platforms, which can be assigned to the type. Not all platforms could be assigned to a type, since not all platforms clearly mention how the award transaction is done.

4.2.1 *CONNECTOR*

Connectors are intermediary platforms. It can help requesters to access external ideas and solutions and to take advantage of structured knowledge repositories (Ramos, de Souza, Mourão, Adams, and Silva, 2012) or to find a seeker for partnering by request for proposal and thus by reducing the otherwise required costly search process (Lichtenthaler and Ernst, 2008). Requesters can receive support in modularizing their problems into smaller projects and independent challenges that do not reveal the overall nature of the innovation searched, in order to protect the IP from competitors (Feller, Finnegan, Hayes, and O'Reilly, 2012). Furthermore the Connector can assist the requester in evaluating solutions. The Connectors allow for negotiated agreements between the solver and the requester. However the Connector does not broker any IP transfer or award transaction between the requester and the contributor, meaning the IP does not get transferred to the platform first and then from the platform the requester, but directly from the contributor to the requester and the award vice versa. Working with Connectors allows requester to benefit from partial anonymity, if it is wished. With partial anonymity I mean and anonymity towards potential competitors but not towards solvers. For instance, a challenge can be posted anonymously, to prevent competitors to draw inferences from the project about the requesters' strategies. However, as soon as the requester gets into 'personal' contact with the solver to negotiate the IP policies or to transfer the IP, the solver knows about the requester's identity.

Examples from the data sample are: Innoget, NineSights and OneBillion Minds.

4.2.2 *ESCROW*

The Escrows are intermediary platforms. An intermediary platform can be seen as a two-sided market (Rochet and Tirole, 2006). They add value to requesters searching for solutions by giving them access to external networks of solution providers and thus reduce the otherwise required

costly community building process. Intermediaries provide to contributors an opportunity to apply their knowledge and capitalize on their IP. "Intermediaries usually stimulate the growth of both seekers and solvers because theirs is not a zero-sum game but rather one in which adding value to one side fosters growth on the other" (Lopez-Vega and Vanhaverbeke, 2009, p. 8). Escrows can, similar to Connectors, support requesters in modularizing their problems or assist them in reward and quality management questions. In contrast to the Connectors, Escrows manage the IP transfer from the contributors to the requesters and/or the award transactions vice versa. Escrows take on a risk management role. Escrows use standard agreements and do not allow for negotiation between the requester and the contributor. They transfer IP and awards on behalf of the requester and contributor. The requester does not get into contact with the contributor, meaning that the requester can stay anonymous to the contributor. Some requesters seem to prefer to remain anonymous when posting challenges. Working with escrows allows requester to benefit from full anonymity, if it is wished. With full anonymity I mean, not only towards potential competitors but also towards solvers. It prevents competitors as well as solvers to draw inferences from the project about the requesters' strategies. Furthermore it can have a positive effect on the solvers' contributions, since "Being anonymous can increase the neutrality and number of responses..." (Hagman and Sonde, 2011, p. 34). However there are tradeoffs of the anonymity. For instance, a solver might submit a solution which he/she already submitted once in an earlier challenge.

Examples from the data sample are: InnoCentive, Hypios, IdeaConnection, Atizo and Clickworker (for solvers from Europe, the Middle East and Africa)

4.2.3 *PAYMENT PROCESSOR*

The Payment Processor is a mixture between Escrow and Connector. Payment Processors do not get involved into the IP transfer, however they transfer the award from the requester to the contributor. Non-negotiable standard agreements rule the IP transfer. However the Payment Processor has the same advantages as the other intermediaries – e.g. they add value to requesters searching for solutions by giving them access to external networks of solution providers and thus reduce the otherwise required costly community building process. Furthermore the Payment Processor can assist the requester in modularizing challenges and evaluating solutions. However the requester is not anonymous to the solver.

At Payment Processors and Escrows non-negotiable agreements are used. This means the requesters rely on the platforms' IP policies. These IP policies might not conform to the requester's general IP strategy. In addition, they make the requesters dependent from the intermediary. If the requester is not stated as a third party beneficiary in the agreement between the solver and the platform, the requester might not be entitled to enforce the contract and relies on the platform to do so. This is for example the case at Skipso – the rights are granted to the seeker, the contract is between the solver and Skipso, however the seeker is not mentioned as a third party beneficiary (Skipso, 2011b). On top Skipso disclaims all liability: "... Skipso ... hereby expressly exclude ... Any liability for ... any other loss or damage of any kind, however arising and whether caused by tort (including negligence), breach of contract or otherwise, even if foreseeable" (Skipso, n/s).

Examples from the data sample are: 99designs, Skipso, CrowdINNO.

4.2.4 *STANDALONE*

The Standalone is a firm platform, i.e. one-sided platform (Lopez-Vega and Vanhaverbeke, 2009), seeking for solutions over their own platform. In contrast to the Connectors, Escrows and Payment Processors the requesters of a Standalone model do not pay any service fee to an intermediary. They have the freedom to work out fair mechanisms for rewarding contributions and transferring IP. A Standalone can use its own standard agreement, which confirms with the requester's general IP strategy. However Standalones can't benefit from anonymity, since the company owning the platform is obvious. Competitors could draw inferences about the requester's strategy from the project launched on the Standalone platform. However Standalones can, in contrast to the other models, not access external ideas and solutions from an already existing community, rather they first have to build their own community. This might consume time and cause costs. Furthermore, Standalones cannot recourse to the knowledge and experience of a crowdsourcing specialist of an intermediary, to get support in modularizing problems or evaluating solutions.

Examples from the data sample are: OpenStreetMap, Wikipedia, Yahoo, MyStarbucksIdea, BMW VIA, LEGO Mindstorms, Fluevog, Electrolux Design Lab, Foldit, and Galaxy Zoo.

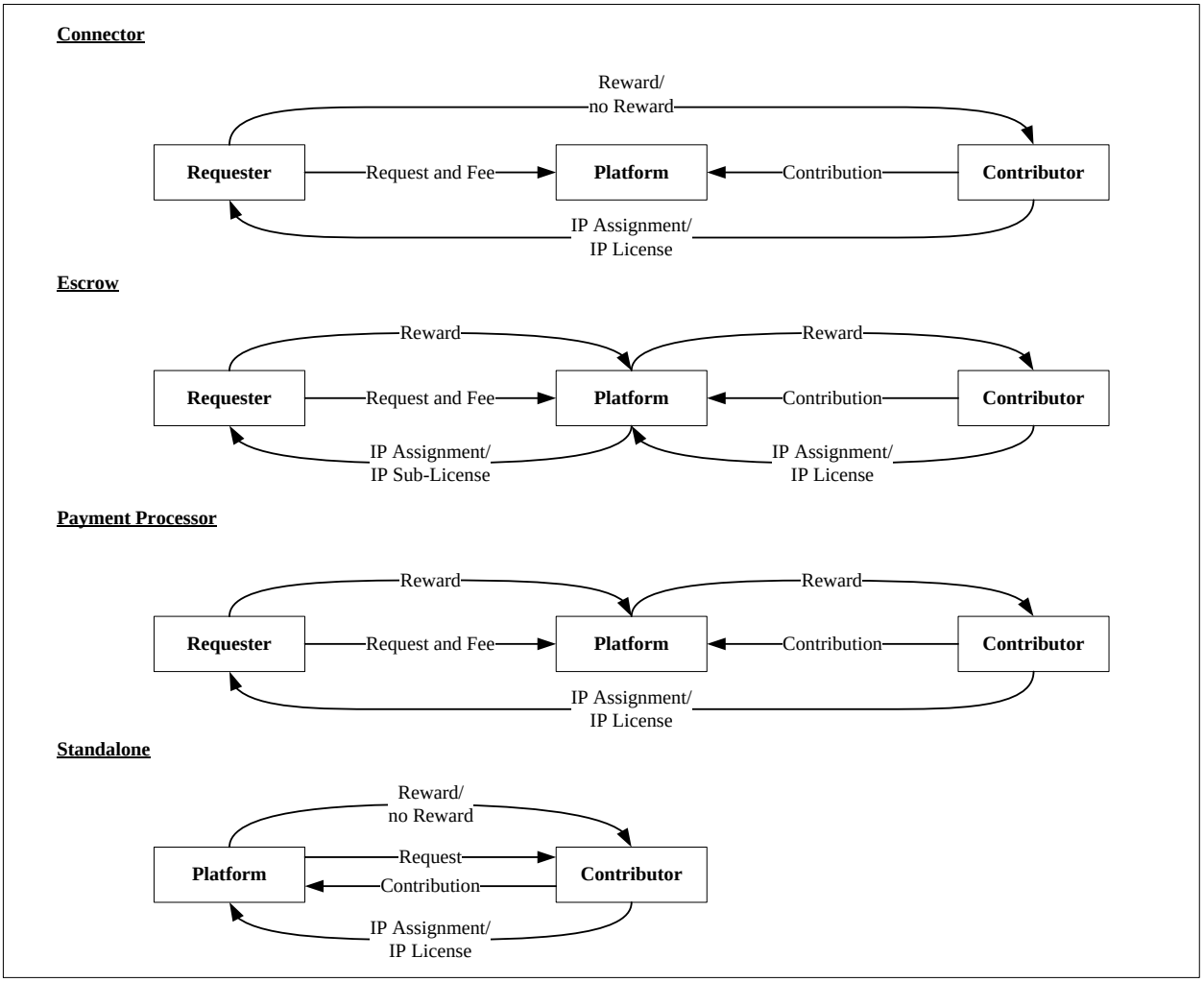

Figure 1 Generic IP Models of Crowdsourcing Platforms

5 Implications

This paper provides contributions to theory and to practice, which are presented in the following sub-chapters.

Several theoretical contributions can be made. Firstly, the paper demonstrates that crowdsourcing turn around the way in which IP is approached traditionally. There is a remarkable diversity among crowdsourcing platforms in how they treat IP rights. In this context it is insufficient to consider IP rights in a vacuum. This paper delivers a first attempt to approach IP in crowdsourcing from a more holistic perspective and reveals several patterns. To better differentiate the patterns found, new notations are introduced and assigned to the patterns. The results of the research imply that the IP approaches depend on the challenge type as well as on

the requester type, which was not yet presented in literature. Lastly, this research complements to the strong value creation focus of the crowdsourcing literature by providing insights to value capture and enriches Open Innovation research by providing empirical evidence on the IP approaches of web-based platforms.

In addition to the theoretical contributions, some practical implications can be specified. The findings emphasize the importance of IP in a crowdsourcing ecosystem. This should encourage practitioners to explore their needs with regard to IP before choosing a potential crowdsourcing intermediary or launching a crowdsourcing project themselves.

Although major aspects of crowdsourcing found already entrance into literature, crowdsourcing is still a very young academic field with a lot of potential for future research. Especially with regard to IP, since the approach to IP is not yet covered well by studies but of growing importance for the actors of the ecosystem of crowdsourcing. In order to increase the validity as well as to refine the general and business implications and recommendations of this paper, appropriate empirical research for testing is encouraged. Furthermore there is a necessity for a further research of the manifested IP approaches in crowdsourcing with the ones of familiar academic streams of literature, such as open innovation or open source. In addition, the effects of for instance pre-determined contracts and payments on the quality, quantity and innovativeness of submissions are not yet understood and provide a promising field for future research. And lastly further research on the variables and the dependencies which influence the success of crowdsourcing efforts is encouraged to develop suitable IPR arrangements and tackle IP management effectively in crowdsourcing.

6 Conclusion

Drawing on the integration of literature and on the emphasis of this research placed on a multiple-case study approach, this research shows, that varying IP approaches are used in order to appropriate value in crowdsourcing. These approaches were classified into two models; IP types of requesters and IP transfer model of platforms. The findings provide new theoretical insights by combining different areas of theory with empiricism and recommendations for managers. This study clarifies that there is no one-size fits all approach and sensitize practitioners for the role of IP in crowdsourcing activities. It indicates that each requester has to determine a suitable IP

approach with regard to the challenge type and through what IP transfer model this can be put into action the best.

This research is not exempted from limitations. The most adverse effective ones are presented in this sub-chapter. Firstly, one major limitation of the study arises out of the case study approach. Even though the sample of the multiple-case study with thirty-six cases is relatively big, the issue of generalization of results raises (Eisenhardt, 1989). While in-depth phenomena might be well captured, the level of generalization might be limited. As mentioned in the prior chapter, will the findings implications of this study need further refining and finally quantitative confirmation. Furthermore, in the aspiration of completeness, simultaneous collection and analysis of case studies are limitations since they have the tendency to become almost irreducibly complex and to lack objectivity (Hodkinson and Hodkinson, 2001). With regards to the case selection, it has to be considered that potentially not all available challenge types are covered. It is imaginable that other challenge types than the ones analyzed in this thesis can be found. Furthermore, the thirty-six IP policies of this study are treated under different national laws, which might have undiscovered consequences and implications on their IP approach. Although the collected data is representative to an extent, the implications and conclusions are not applicable to every crowdsourcing activity. Lastly, despite this study attempted to cover all different types of crowdsourcing to draw a holistic picture, some types might have been undiscovered and thus leave a gap in the knowledge.

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