

Towards a Taxonomy of Ethical Considerations in Crowdsourcing

Full Paper

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Abstract

Crowdsourcing is a growing industry, where millions of individuals and businesses have begun tapping into the crowd to perform work. Despite this growth, crowd work and labor contains few regulations. Previous researchers have highlighted examples of ethical challenges organizations and individuals face in crowdsourcing. This paper explores these challenges, using Value Sensitive Design and transparency literature to identify candidate ethical principles in crowdsourcing. Integrating these principles with ethical dilemmas, crowdsourcing models, and affected stakeholders, this research uses a deductive approach to develop a taxonomic framework of ethical considerations in crowdsourcing. The resulting taxonomy provides practical and theoretical contributions. Organizations choosing to use crowdsourcing can refer to the classification to understand ethical implications, as well as accounting for ethical requirements in the design and governance of projects. Researchers can expand the classification to gain understanding of each element and the interrelationships. Finally, we describe specific directions for future research.

Keywords

Crowdsourcing, ethics, classification, taxonomy, Value Sensitive Design, transparency

Introduction

Crowdsourcing is a growing industry, as crowdsourcing vendors gross more than \$500 million annually, and workers have earned \$1-2 billion in the last decade (Felstiner 2010; Frei 2009). Crowdsourcing has become a huge business model for providing solutions, with the crowdsourcing workforce doubling each year and revenues rising by 75% per annum (Schmidt 2013a). The introduction and growth of information systems (IS) such as crowdsourcing has a ripple effect, which raises new ethical, social, and political issues. In general, Information Technology (IT) has created new possibilities of behaviors, and lawmakers are slow to develop laws and rules for acceptable conduct (Laudon and Laudon 2013). Millions of individuals and businesses have begun tapping into the crowd to perform work, yet crowd work and labor in the crowdsourcing industry contains few regulations (Felstiner 2010).

Previous researchers have highlighted anecdotes of the ethical challenges organizations or individuals face in crowdsourcing. Some examples include participants unknowingly creating spam or writing fake product reviews (Felstiner 2010), pay far below the federal minimum wage (Irani and Silberman 2013), and whether workers should be employees rather than cheap laborers (Harris 2014; Schmidt 2013b). These examples, while important, lack exploration into the deeper impacts of the anecdotes. A systematic classification is necessary to explore the significance of these examples in the realm of crowdsourcing. Organizations attempting to crowdsource should consider these potential situations. The purpose of this paper is to create a systematic framework for classifying ethical principles and values in crowdsourcing in relation to current ethical dilemmas, business models for crowdsourcing, and crowdsourcing stakeholders.

Background

To inform our research efforts, we summarize prior research on ethical and legal crowdsourcing, crowdsourcing models from previous research, identify potential ethical values of crowdsourcing participants, and give further examples of ethical dilemmas in previous crowdsourcing endeavors.

Ethical and Legal Crowdsourcing Research

As stated in the Introduction, there are various anecdotes describing ethical challenges in crowdsourcing. We expand on some examples and previous research here. Felstiner (2010) focused on issues where workers receive wages, identifying crowdsourcing work is unregulated for employment and labor law purposes. Other research recognized the impact of these issues, and questioned the sustainability of such a model. For instance, Kittur et al. (2013) synthesized a framework for the future of crowd work, which encourages the design of crowdsourcing initiatives to satisfy the needs of both individuals and organizations. Brabham (2013) highlighted legal issues (e.g., intellectual property) and labor exploitation (e.g., low pay) in crowdsourcing, emphasizing the importance of satisfied crowd workers.

Despite the lack of regulations, there have been many lawsuits on crowd work. CrowdFlower is a crowdsourcing platform where users perform micro-tasks (tasks users can complete in a few minutes). For example, a task may be to identify a person in a photo, verify phone numbers, or write reviews. In October 2012, an online worker named Christopher Otey filed a lawsuit against CrowdFlower, claiming companies are failing to pay the federal minimum wage (\$7.25 an hour at the time of the lawsuit) under the Fair Labor Standards Act (Schmidt 2013a). CrowdFlower's defense says workers are working voluntarily, and are free contractors instead of employees. CrowdFlower settled in court on September 2, 2014, paying a gross settlement of \$585,507.00 (2014).

Many defendants of crowdsourcing suits claim existing federal laws do not apply for crowdsourcing. They argue individuals are not obligated to participate; the platforms provide only information about tasks. Moreover, governance mechanisms of crowdsourcing do not allow the problem owner to take any disciplinary action against incorrect solutions or illicit content. Because participants are not employees of the organization, winning money is an award, not a salary (Roth 2014). Similarly, Dawson and Bynghall (2012) address ethical challenges, for example, a participant should earn money for their knowledge sharing in for-profit ventures.

Crowdsourcing Models

Organizations use different methods for accomplishing goals through crowdsourcing. Research has identified many types of crowdsourcing platforms such as idea and design competitions, generating content, solving problems, and community discussion boards. The differing purposes platforms result in many crowdsourcing models, where design aspects vary depending on the model.

In the open innovation model individuals in the crowd submit and discuss ideas, and organizations select the top ideas as outcomes (Nguyen et al. 2013). For example, in idea competitions, organizations use online mechanisms to aggregate crowd opinions (Blohm et al. 2011). Schmidt (2013b) identified four categories focusing on incentives for crowd engagement. First, cognitive piecework provides monetary rewards, usually in small sums for discrete sets of cognitive micro tasks (e.g., Amazon Mechanical Turk). Second, contest-based crowd work provides an open competition where workers compete against each other to earn money or other rewards (e.g., 99designs) (Felstiner 2010). Third, volunteer crowd work participants contribute their knowledge and previous experience to perform tasks (Schmidt 2013b). Fourth, contributors in disguised or epiphenomenal crowdsourcing are unaware of performing work for some other purpose, such as reCAPTCHA, which protects a site from bots while also digitizing text from books or other scanned documents (Cherry 2011; Felstiner 2010; Schmidt 2013b; Zittrain 2008).

Legal and regulatory research on crowdsourcing models focuses on compensation. First, the expert network model solves complex, non-routine tasks (Felstiner 2010). Organizations can access an online network of experts in any field to outsource complex technical or business questions, instead of using internal resources (e.g., Gurustorms) (Felstiner 2010). Second, charitable or public interest crowdsourcing can employ any crowdsourcing model, but the problem owner is a public or nonprofit organization (Felstiner 2010).

The distributed problem-solving and production model is a general crowdsourcing model where a company posts a problem online, individuals provide solutions online, organizations reward winning ideas, and the organization mass produces the ideas for its own gain (Brabham 2008; Busarovs 2011). The collaboration model occurs when organizations use people-centric web technologies to solve individual, organizational, and social problems (Pedersen et al. 2013). Saxton et al. (2013) classify crowdsourcing models based on products and services, user roles, level of collaboration, and compensation schemes. They identify business models organizations use such as intermediary, citizen media production, collaborative software development, digital goods sales, product design, peer-to-peer social financing, consumer reporting, knowledge base building, and collaborative science projects. We adopt these as a basis for exploring crowdsourcing models. Table 1 summarizes the Saxton et al. (2013) models, with a description, other model associations, and examples.

Business Model from Saxton et al. (2013)	Description	Other model associations	Examples
Citizen media production	User-generated news, TV programs, other media, etc.	Distributed problem-solving and production	weBook.com
Collaborative science project	When dealing with vast amounts of data, human input and evaluation may be required to identify or match patterns in data	Disguised or epiphenomenal crowdsourcing, distributed problem-solving and production, and cognitive piecework	reCAPTCHA
Collaborative software development	Community members participate in the process of product creation, from product design, to marketing the product, to designing software for the product	Distributed problem-solving and production	CambrianHouse
Consumer report	Users share product reviews or recommendations	Volunteer crowd work, cognitive piecework	ReeVoo.com
Digital goods sales	Sources digital pictures from contributors	Distributed problem-solving and production	iStockPhoto
Intermediary	Web users serve as a virtual work force; problem solving is outsourced to the online community	Cognitive piecework, open innovation, contest-based crowd work, expert networks, charitable or public interest, and distributed problem-solving/production	InnoCentive, 99Designs, Guru
Knowledge base building	Aggregates human intelligence information, such as in wikis	Volunteer crowd work, cognitive piecework	Emporis.com
Peer-to-Peer social financing	Connects lenders and borrowers, bypassing traditional banks and financial institutions	None	Kiva.org
Product design	Organizations manufacture consumer products based on design contributions	Distributed problem-solving and production	Threadless

Table 1. Crowdsourcing Business Models (sorted alphabetically by model)

Ethical Values

There are two important theoretical foundations as a starting point for identifying relevant values in crowdsourcing: Value Sensitive Design (VSD) and Transparency.

Value Sensitive Design and Transparency

Value Sensitive Design is a theoretically grounded approach and useful tool for designing an IT system (Friedman et al. 2008), and provides a baseline of ethical principles to explore in the context of crowdsourcing. VSD as a methodology comprises three investigations into values: conceptual investigations, empirical investigations, and technical investigations (Friedman et al. 2008). Stakeholder values are specific to context and VSD suggests values for researchers and system designers to consider. These human values include human welfare, ownership and property, privacy, freedom from bias, universal usability, trust, autonomy, informed consent, accountability, courtesy, identity, calmness, and environmental sustainability (Friedman et al. 2008).

VSD proposes certain values are universal, but play out in different ways depending on context, culture, and time (Friedman et al. 2008). While the values are broad, and Friedman qualifies the values are dependent on context, time, and culture, some research has suggested VSD over claims the universality of values. Borning and Muller (2012) argue the claims of universality are problematic and VSD should adopt the position that universality is a contested issue. They urge researchers using VSD to “state their position, why they took it, and what the consequences were.” To answer this, we recognize the values we adopt are not universal, and the nature of this research is conceptual. We take this stance because VSD, at a minimum, provides a list of values to perform conceptual investigations in our specific context.

Because of this ambiguity, we need further support to adopt certain VSD values. We incorporate theories of transparency to this research to inform a conceptual list of values. We chose transparency because transparency in itself is not an ethical principle, but it creates a pro-ethical condition for identifying ethical principles (Turilli and Floridi 2009). In addition, fostering transparency can enable organizations to become more honest, fair, and accountable, and stakeholders prefer transparent companies to opaque companies (Elia 2009).

Transparency is an important concept in ethics literature, conjuring many different meanings depending on the context. Studies on transparency in organizations are prominent in many disciplines such as management, marketing, business ethics, and IT. In general, Creyer (1997) found people are suspicious of organizations acting in a secretive manner, and transparency can enhance stakeholder confidence, trust, recruitment, and retention. Elia (2009) expands this, claiming transparency is not just for respecting stakeholder rights, but also for gaining competitive advantage, growth, and profit. In the remainder of this section, we identify principles and values from transparency and VSD applicable to crowdsourcing.

Accountability

Accountability as an ethical principle means an individual is accountable for his/her actions (Turilli and Floridi 2009). Accountability protects all stakeholders because it includes the properties to ensure the actions of a person or institution trace uniquely to that person or institution (Friedman et al. 2008). Accountability involves bearing responsibility for one’s actions, especially in public fora (Cenite et al. 2009). In the context of crowdsourcing, this means when participants interact, their actions may affect other participants and each person bears responsibility. In addition, individuals must be accountable for their work, because poor contributions may lead to a low quality outcome. This has been a problem in the open source software community, as they can be prone to bugs (Grodzinsky et al. 2003), and is equally important in the crowdsourcing community.

Attribution

In the transparency literature, copyright is an ethical principle regulating the flow of information by providing details about how entities can copy or use particular information (Turilli and Floridi 2009). In crowdsourcing, this may be an idea, software, or a product (e.g., logo, photo) a participant produces. VSD refers to the value of ownership and property, which is the right for a person to possess an object (or information), use it, and derive income from it (Friedman et al. 2008). Based on these principles of ownership, organizations must attribute the product (or information) a person creates. Thus, we conceptualize intellectual property and copyright as attribution, which involves avoiding plagiarism, honoring intellectual property rights, and giving credit to sources properly (Cenite et al. 2009).

Autonomy

Autonomy refers to an individual's ability to decide, plan, and act in order to achieve their goals (Friedman et al. 2008). In transparency, when people are autonomous, they produce outputs with less intervention from external entities (Turilli 2007). In crowdsourcing, individuals inherently have autonomy because they choose which tasks to perform, but may gain or lose autonomy once they agree to participate.

Informed Consent

Informed consent is an agreement between the individual and the organization providing protection for privacy and supports other human values such as autonomy and trust (Friedman et al. 2008). This principle is required for research, and should be required for any crowdsourcing endeavor. Informed consent is more than simply an agreement, it is a comprehensive, explicit disclosure of what information an individual agrees to provide (Millett et al. 2001). This individual consent can sometimes act as a constraint on the organization (Turilli 2007).

Privacy

Privacy is a claim, entitlement, or right of an individual on what information another individual or organization can obtain and communicate to others (Friedman et al. 2008). Transparency is an enabler of privacy because a company can supply details for a relationship with the individual through consent forms, which clarify the extent of how information will be used (Turilli and Floridi 2009). The concern for individuals is they lose control of their information and the possibility of unauthorized parties obtaining or using this information.

Trust

Trust is fundamental for both transparency and VSD. However, the two theories have differing viewpoints. In transparency, trust contributes to competitive advantage, business growth, efficiency, lower costs, and recruiting and retaining new customers (and workers) (Elia 2009). Thus, Elia does not see trust as an ethical principle in itself; trust is a result of organizations becoming more transparent. On the other hand, Friedman et al. (2008) views trust as an important human ethical value, through expectations between people through goodwill (high trust), vulnerability (low), or betrayal (low). Distinguishing between the philosophical views of trust and its effects on other principles is outside the scope of this research, but we recognize trust as a potential value for crowdsourcing participants.

Welfare

Human welfare (Friedman et al. 2008) and social welfare (Turilli and Floridi 2009) are types of welfare in VSD and transparency, respectively. Human welfare entails physical, material, and psychological well-being (Friedman et al. 2008). In the purpose of this study and in the context of crowdsourcing, we conceptualize welfare in terms of incentive compensation for participants (i.e., fair wages), benefits, and job security.

Ethical Dilemmas

There are several ethical dilemmas in crowdsourcing. To minimize issues, both sides need protection – the crowdsourcing organization, and the individual/crowd side. In addition, crowdsourcing can affect external entities, such as those affected when a crowdsourcing model undercuts prices. For example, iStockPhoto has reduced stock photo costs by up to 99% (Howe 2008).

An obvious issue is low pay for labor. Norcie (2011) addressed this, stating workers who do not receive fair pay violates the National Research Act of 1974. It also has a homogenizing effect on the participant pool of Mechanical Turk. Turkers on average receive approximately 50% of the US Federal Minimum wage (Norcie 2011). Similar to low wages, individuals do not receive benefits and have no job security (Felstiner 2010).

Information asymmetry occurs when an organization has more information about the participants, problem, product, etc. than the individual (Felstiner 2010). Deception occurs when individuals may be working for a disreputable organization, without knowledge of the organization or purpose of the work; for example, spammers hire people to fill out captchas without the worker's knowledge (Zittrain 2008; Zittrain 2009). Last, intellectual property rights issues occur when crowdsourcing organizations maintain ownership rights of the work. For example, when individuals attempt to sell images on iStockPhoto, iStockPhoto owns the images (Felstiner 2010; Howe 2008). To summarize, we highlight undercutting prices, low pay, no benefits, no job security, lack of regulations, information asymmetry, deception, privacy, and intellectual property. Although this list is not exhaustive, it is a comprehensive overview of ethical dilemmas in performing crowdsourcing work.

Methodology

When little is known about a phenomenon, a taxonomy provides a theory for analyzing phenomena and relationships among phenomena (Gregor 2006). We used a deductive approach, meaning we deduce our theory based on existing bodies of literature (Gregor 2006). The method of developing a taxonomy starts with defining users (i.e., stakeholders) and the purpose (Geiger et al. 2011). Our deductive approach began by identifying stakeholders, deriving candidate ethical principles and values, classifying ethical dilemmas, and identifying common business models crowdsourcing organizations use. The purpose of the taxonomy is to understand each of these components and the circumstances to activate each principle, dilemma, and model (and the stakeholder each circumstance affects). First, we identified common crowdsourcing stakeholders: individuals who participate in crowdsourcing, organizations using crowdsourcing for any purpose, and external entities. External entities can be professionals whom crowdsourcing affects, such as the iStockPhoto example of undercutting industry prices, or someone who involuntarily participates in crowdsourcing, such as the reCAPTCHA example. Second, we derived ethical principles and values as described in the VSD and transparency section. Third, we classified ethical dilemmas by reviewing previous literature and practical publications on ethical, legal, and disruptive social situations in crowdsourcing. We identified overlap among some dilemmas; specifically, welfare is a combination of low pay, no benefits, and no job security. Fourth, we identified common crowdsourcing business models from previous literature. Originally, we found more than twenty crowdsourcing models, then reduced this number to nine, as the business models in (Saxton et al. 2013) provided a set of models encompassing all crowdsourcing models.

After the identification phase, we continued the deductive process by keying the taxonomy on each column (i.e., concept). To provide a detailed view of how each concept relates, we expanded the table, keying a different concept for each section. Each highlighted section indicates a different key, and each key is in *italics*. The first section keys ethical principles with dilemmas occurring when crowdsourcing situations enable the principle, the stakeholders the principle affects, and the crowdsourcing models experiencing this principle. In the second section, each dilemma activates ethical principles, affects stakeholders, and is evident in certain models. In the third section, each model can affect a stakeholder, dilemma, and principle. We found keying the stakeholders is unnecessary, because it does not add value to the taxonomy. For instance, the summation of principles, dilemmas, and models affect all stakeholders; in turn, the stakeholders do not affect principles, dilemmas, or models.

A Taxonomy of Ethical Considerations

The theoretical contribution of this research is a taxonomy to classify the characteristics of ethical issues in crowdsourcing with respect to ethical principles. This taxonomy analyzes ethical considerations and concerns in crowdsourcing, in the form of principles and values, dilemmas, stakeholders, and how these considerations relate, in Table 2. See Table A1 in the Appendix for the list of acronyms associated with this table.

Principle/Value	Dilemma	Stakeholder Affected	Crowdsourcing Models
Accountability (AC)	D, IA, IP, UP	Individual Organization	CM, CSP, I
Attribution (AT)	D, IP, LR	All	CM, CSD, DG, I, KB, PD
Autonomy (AU)	D, IP	Individual	CR, CSD, CSP, DG, I, KB, PD
Informed Consent (IC)	D	Individual	CSP
Privacy (P)	P	Individual Organization	CR, CSP, I, KB, DG, PP
Trust (T)	D, IA, LR	Individual Organization	CR, CSP, I, KB, DG, I, PP
Welfare (W)	IP, W	All	CM, CR, CSD, CSP, DG, KB, I, PD, PP
AC, AT, AU, IC, P, T	Deception (D)	Individual Organization	CR, CSP, DG, I, KB, PP
AC, T	Information asymmetry (IA)	Individual	CR, CSP, I, KB
AC, AT, AU, W	Intellectual property rights (IP)	All	CM, CSD, I, KB, PD
AT, P, T	Lack of regulations (LR)	Individual Organization	CR, CSP, I, KB, PP
P	Privacy (P)	Individual Organization	CR, CSP, DG, I, KB, PP
AC	Undercut prices (UP)	External	CM, CR, CSD, CSP, DG, I, PD
W	Welfare (W)	Individual	CM, CR, CSD, CSP, DG, I, KB, PD
AC, AT, W	IP, UP, W	All	Citizen media production (CMP)
AC, AU, IC, P, T, W	D, IA, LR, P, UP, W	Individual Organization	Collaborative science project (CSP)
AT, AU, W	IP, UP, W	Individual Organization	Collaborative software development (CSD)
AU, P, T, W	D, IA, LR, P, UP, W	Individual	Consumer report (CR)
AT, AU, P, T, W	D, P, UP, W	All	Digital goods sales (DG)
AC, AT, AU, P, T, W	D, IA, IP, LR, P, UP, W	All	Intermediary (I)
AT, AU, P, T, W	D, IA, IP, LR, P, W	Individual Organization	Knowledge base building (KB)
P, T	D, LR, P	Individual	Peer-to-Peer social financing (PP)
AT, AU, W	IP, UP, W	All	Product design (PD)

Table 2. Taxonomy of Ethical Considerations in Crowdsourcing (sorted by key)¹

We identified interesting results during the classification. First, some dilemmas and principles affect multiple stakeholders. For example, the dilemma of deception can affect individuals, such as when people participate in reCAPTCHA. The individual may be unaware of the purpose, unaware of the organization, and may be unaware entirely he or she is participating in crowdsourcing! Deception in turn can affect organizations, because individuals may deceive the organization, such as using a bot to perform cognitive piecework tasks.

¹ Key refers to the basis for each section of the taxonomy. For instance, the first section key is accountability, attribution, etc.; the second is deception, information asymmetry, etc.; the third is citizen media production, collaborative science project, etc. Each key also includes its corresponding abbreviation.

Second, citizen media (CM) and collaborative software development (CSD) are similar in relation to ethical principles. Some CM projects pay well, sometimes more than \$100 for a contribution (Saxton et al. 2013). CSD undercuts prices and pays low compared to industry standards of software development, even though many CSD projects pay a better wage than other crowdsourcing models.

Last, attribution affects individuals as well as organizations and external entities. Organizations should protect themselves so they do not use copyrighted materials. Individual contributors should understand how organizations will use the intellectual property they create. When attribution affects external entities, a company or individual may take away potential income from the external entity, even though the entity is not participating in crowdsourcing. Thus, attribution is a multifaceted principle creating important ethical, legal, and potentially industry-changing questions.

Discussion and Conclusions

Plan of Evaluation

Further evaluation of a taxonomy beyond statements and observations is necessary. Doty and Glick (1994) argue classification systems should develop hypotheses with the intention of predicting variance in dependent variables (Gregor 2006). Many outcomes for the design and implementation of an ethical crowdsourcing system can provide important evaluations of the taxonomy. First, trust in the crowdsourcing organization is an ethical principle, as well as a possible outcome. Crowdsourcing participants who experience a potential loss of control of private information may affect trust beliefs. Malhotra et al. (2004) found that individuals with high information privacy concerns exhibit low trusting beliefs in the organization, thus:

H1: *Privacy concerns will have a negative relationship with an individual's trusting beliefs in the crowdsourcing organization.*

Second, if crowdsourcing participants are dissatisfied, they are free to leave at any time, which could cause a crowdsourcing application to collapse (Brabham 2013). As such, the participant's intention to return to the crowdsourcing platform is an important outcome. Delaney and Huselid (1996) found a significant positive relationship between incentive compensation (i.e., welfare) and organizational performance, such as attracting workers. Thus, we hypothesize:

H2: *Welfare will have a positive relationship with an individual's intention to return to the crowdsourcing platform.*

These two hypotheses are examples of many possible tests to evaluate the taxonomy. Other hypotheses may derive from previous empirical research, such as perceived ethicality as a dependent variable, perceived ethicality as a moderator between ethical values and trust, trust as a mediator between each ethical value and intention to return, or actual system use as a dependent variable.

Limitations and Future Work

The purpose of this paper is to provide a systematic framework for classifying ethical principles and values in crowdsourcing, providing a guide for designing crowdsourcing systems. In addition, this classification provides researchers with a system for further exploring ethical values in crowdsourcing. Based on current literature and a deductive process, we have developed a taxonomic classification of ethical considerations.

This paper creates a few opportunities for future research. First, the taxonomy is thorough, yet not exhaustive. Expanding the conceptual investigation, then following up with empirical and technical investigations would enable researchers to use, for example, all crowdsourcing models in a taxonomy to gain a deeper understanding of the relationships of principles and models. Furthermore, such investigations should require researchers to reach out directly to participants, to get the "voice of the participants" as Borning and Muller (2012) suggests.

Second, although we do not test the hypotheses, we provide them to demonstrate the usefulness of the taxonomy. Future research can thoroughly evaluate the usefulness of the taxonomy by testing the hypotheses, as well as identifying and testing additional hypotheses. Finally, we used transparency and

VSD literature to derive values, which are not universal. Other theories may be applicable, such as normative business theories (stakeholder, stockholder, social contract, etc.) (see e.g., Smith and Hasnas 1999).

Contributions

This research contributes to practice and to crowdsourcing research. First, it gives a systematic understanding of ethical considerations, as opposed to anecdotal contributions from previous literature. Second, researchers can focus on each of these models, dilemmas, and principles to gain in-depth understanding on each element of the taxonomy. Finally, from an engineering perspective, the notion of a better understanding of ethical concerns, organizations using crowdsourcing can take into account ethical requirements for the design and governance of projects; similarly, crowdsourcing platform providers can consider building additional functionality to mitigate certain ethical risks.

REFERENCES

2014. "United States District Court for the Northern District of California, Otey Et Al V. Crowdfunder, Inc. Et Al." Document 207, from <http://wtf.tw/ref/otey.pdf>
- Blohm, I., Riedl, C., Leimeister, J. M., and Krcmar, H. 2011. "Idea Evaluation Mechanisms for Collective Intelligence in Open Innovation Communities: Do Traders Outperform Raters?," in *Proceedings of the 33rd International Conference on Information Systems*, Shanghai, China, p. Paper 19.
- Borning, A., and Muller, M. 2012. "Next Steps for Value Sensitive Design," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*: ACM, pp. 1125-1134.
- Brabham, D. C. 2008. "Crowdsourcing as a Model for Problem Solving an Introduction and Cases," *Convergence: The International Journal of Research Into New Media Technologies* (14:1), pp. 75-90.
- Brabham, D. C. 2013. *Crowdsourcing*. The MIT Press.
- Busarovs, A. 2011. "Crowdsourcing as User-Driven Innovation, New Business Philosophy's Model," *Journal of Business Management* (4), pp. 53-60.
- Cenite, M., Detenber, B. H., Koh, A. W., Lim, A. L., and Soon, N. E. 2009. "Doing the Right Thing Online: A Survey of Bloggers' Ethical Beliefs and Practices," *New Media & Society* (11:4), pp. 575-597.
- Cherry, M. A. 2011. "A Taxonomy of Virtual Work," *Georgia Law Review* (45:4), pp. 951-1013.
- Creyer, E. H. 1997. "The Influence of Firm Behavior on Purchase Intention: Do Consumers Really Care About Business Ethics?," *The Journal of Consumer Marketing* (14:6), pp. 421-432.
- Dawson, R., and Bynghall, S. 2012. *Getting Results from Crowds*. Advanced Human Technologies.
- Delaney, J. T., and Huselid, M. A. 1996. "The Impact of Human Resource Management Practices on Perceptions of Organizational Performance," *Academy of Management Journal* (39:4), pp. 949-969.
- Doty, D. H., and Glick, W. H. 1994. "Typologies as a Unique Form of Theory Building: Toward Improved Understanding and Modeling," *Academy of management review* (19:2), pp. 230-251.
- Elia, J. 2009. "Transparency Rights, Technology, and Trust," *Ethics and Information Technology* (11:2), pp. 145-153.
- Felstiner, A. L. 2010. "Working the Crowd: Employment and Labor Law in the Crowdsourcing Industry," *Berkeley Journal of Employment & Labor Law* (32), pp. 143-204.
- Frei, B. 2009. "Paid Crowdsourcing: Current State & Progress toward Mainstream Business Use." from <http://www.smartsheet.com/files/haymaker/PaidCrowdsourcingSept2009-ReleaseVersion-Smartsheet.pdf>
- Friedman, B., Kahn Jr, P. H., and Borning, A. 2008. "Value Sensitive Design and Information Systems," in *The Handbook of Information and Computer Ethics*, K.E. Himma and H.T. Tavani (eds.). Hoboken, N.J.: John Wiley & Sons, Inc., pp. 69-101.
- Geiger, D., Seedorf, S., Schulze, T., Nickerson, R., and Schader, M. 2011. "Managing the Crowd: Towards a Taxonomy of Crowdsourcing Processes," in *Proceedings of the 17th Americas Conference on Information Systems*, Detroit, MI, USA, p. Paper 430.
- Gregor, S. 2006. "The Nature of Theory in Information Systems," *MIS Quarterly* (30:3), pp. 611-642.
- Grodzinsky, F. S., Miller, K., and Wolf, M. J. 2003. "Ethical Issues in Open Source Software," *Journal of Information, Communication and Ethics in Society* (1:4), pp. 193-205.

- Harris, M. 2014. "Amazon's Mechanical Turk Workers Protest: 'I Am a Human Being, Not an Algorithm'," in: *The Guardian*.
- Howe, J. 2008. *Crowdsourcing: How the Power of the Crowd Is Driving the Future of Business*. New York, NY: Crown Business.
- Irani, L. C., and Silberman, M. 2013. "Turkopticon: Interrupting Worker Invisibility in Amazon Mechanical Turk," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*: ACM, pp. 611-620.
- Kittur, A., Nickerson, J. V., Bernstein, M., Gerber, E., Shaw, A., Zimmerman, J., Lease, M., and Horton, J. 2013. "The Future of Crowd Work," in *Proceedings of the 2013 conference on Computer supported cooperative work*: ACM, pp. 1301-1318.
- Laudon, K. C., and Laudon, J. P. 2013. *Management Information Systems: Managing the Digital Firm*. Upper Saddle River, NJ: Prentice Hall.
- Malhotra, N. K., Kim, S. S., and Agarwal, J. 2004. "Internet Users' Information Privacy Concerns (Iuipc): The Construct, the Scale, and a Causal Model," *Information Systems Research* (15:4), pp. 336-355.
- Millett, L. I., Friedman, B., and Felten, E. 2001. "Cookies and Web Browser Design: Toward Realizing Informed Consent Online," in *Proceedings of the SIGCHI conference on Human factors in computing systems*, Seattle, WA, USA: ACM, pp. 46-52.
- Nguyen, C., Oh, O., Kocsis, D., and Vreede, G. J., de. 2013. "Crowdsourcing as Lego: Unpacking the Building Blocks of Crowdsourcing Collaboration Processes," in *Proceedings of the 34th International Conference on Information Systems*, Milan, Italy, p. Paper 99.
- Norcie, G. 2011. "Ethical and Practical Considerations for Compensation of Crowdsourced Research Participants," in *CHI WS on Ethics Logs and VideoTape: Ethics in Large Scale Trials & User Generated Content*, Vancouver, BC, Canada.
- Pedersen, J., Kocsis, D., Tripathi, A., Tarrell, A., Weerakoon, A., Tahmasbi, N., Xiong, J., Deng, W., Oh, O., and Vreede, G. J. d. 2013. "Conceptual Foundations of Crowdsourcing: A Review of IS Research," in *Proceedings of the 46th Annual Hawaii International Conference on System Sciences*, Maui, HI, USA, pp. 579-588.
- Roth, Y. 2014. "Should Creative Crowdsourcing Participants Get Working Contracts and Salaries?," from <http://yannigroth.com/2014/01/07/should-creative-crowdsourcing-participants-get-working-contracts-and-salaries/>
- Saxton, G. D., Oh, O., and Kishore, R. 2013. "Rules of Crowdsourcing: Models, Issues, and Systems of Control," *Information Systems Management* (30:1), pp. 2-20.
- Schmidt, F. A. 2013a. "For a Few Dollars More-Class Action against Crowdsourcing." *Peer-Reviewed Journal About#*, from <http://www.aprja.net/?p=836>
- Schmidt, F. A. 2013b. "The Good, the Bad and the Ugly: Why Crowdsourcing Needs Ethics," in *IEEE 3rd International Conference on Cloud and Green Computing (CGC)* Karlsruhe, Germany, pp. 531-535.
- Smith, H. J., and Hasnas, J. 1999. "Ethics and Information Systems: The Corporate Domain," *MIS Quarterly* (23:1), pp. 109-127.
- Turilli, M. 2007. "Ethical Protocols Design," *Ethics and Information Technology* (9:1), pp. 49-62.
- Turilli, M., and Floridi, L. 2009. "The Ethics of Information Transparency," *Ethics and Information Technology* (11:2), pp. 105-112.
- Zittrain, J. 2008. "Ubiquitous Human Computing," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* (366:1881), pp. 3813-3821.
- Zittrain, J. 2009. "The Internet Creates a New Kind of Sweatshop." *Newsweek*, from <http://www.newsweek.com/internet-creates-new-kind-sweatshop-75751>