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A FRAMEWORK FOR THE NOTION OF 'UTILITY' IN THE LANDSCAPE OF CROWDFUNDING

Research paper

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Abstract

Crowdfunding, peer-to-peer lending, and crowdfunding are part of the philosophy of 'openness' in information systems and constitute valuable opportunities for raising funds for business ideas and any type of project. Research has confirmed that online crowdfunding generates high value for project initiators that look for financial resources. Funders, for their part, benefit from funding compensations which they receive in exchange for their financial support. And, finally, diverse other groups of individuals are directly or indirectly influenced by the project results. As a consequence, research articles often touch aspects of utility regarding the individuals concerned. In fact, the notion of utility is of special importance in the context of crowdfunding because it constitutes the basis for explaining participants' actions and decisions. However, crowdfunding research does not use a consistent concept of 'utility', discusses aspects of utility only superficially, and ignores the various influences on utility generation processes in the landscape of crowdfunding. For this reason, we propose a consistent conceptualization of utility in the area of crowdfunding that regards the different sources of utility. We discuss the influences on funders' decision making and demonstrate that aspects of imperfect openness affect utility generating processes in crowdfunding in many ways.

Keywords: Crowdfunding, Peer-to-Peer Lending, Crowdfunding, Utility, Openness.

1 Introduction

Thanks to the wide-spread use of the Internet and to its connective power, crowd-based approaches and businesses have gained traction and have become powerful alternatives to the traditional methods. Such crowd-based approaches are part of the philosophy of 'openness', are based on open calls that are intended to reach as many Internet users as possible, and are geared towards stimulating intellectual participation or supportive contributions of the Internet users addressed. In line with this philosophy, crowdsourcing is defined as "the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call" (Howe, 2006). Related to this concept, in crowdfunding, the function of financing, i.e., acquiring financial resources, is outsourced to the Internet crowd (Belleflamme et al., 2015; Cordova et al., 2015; Kuppuswamy and Bayus, 2013). Crowdfunding activities are usually intermediated by means of online platforms, which bring together money-seekers and people who are willing to provide money (Beaulieu et al., 2015).

Research has already started to investigate and to discuss several aspects in the area of crowdfunding. For example, it has been shown that users of crowdfunding platforms have various motives and motivations for participating in crowdfunding (Gerber et al., 2012). Thereby, research has revealed that crowdfunding creates value for its stakeholders in many ways. Using more economic vocabulary, this value can be described as *utility* for each individual concerned. These individual utilities can be seen as the main underlying drivers of participating in crowdfunding. Another stream of research literature investigates for what reasons certain crowdfunding campaigns are more successful in collecting a cer-

tain targeted amount of funding while other projects fail to reach their funding goal. Research has identified several factors that have a significant influence on the successful funding of campaigns (e.g., Koch and Siering, 2015; Mollick, 2014; Zvilichovsky et al., 2014). There are strong arguments suggesting that these factors are considered by potential funders when evaluating project campaigns. Due to information asymmetry between initiators and potential funders (Belleflamme et al., 2014), these factors are regarded in order to assess, for example, the quality of a project or the trustworthiness of its initiator (Mollick, 2014). This indicates that funders are indeed actively engaged in evaluating which campaigns will potentially enhance their utility.

Although many phenomena have been addressed by empiric investigations and theoretical considerations, research has not yet dared a step deeper into the economic evaluation of funding results in the context of crowdfunding. While parts of the funding processes and results have been considered in research, the big picture of how crowdfunding creates value for all its stakeholders or of how it can best serve all stakeholders concerned is still missing. The optimal way of investigating and evaluating utility in online crowdfunding would be observing and analyzing a perfectly transparent world that allows for measuring all influences and relevant utilities of all individuals concerned. This world, however, is not existing and the measurement of utility has always presented research with a severe problem (Alchian, 1953). While there are experimental approaches to measure utility (Mosteller and Nogee, 1951), it is difficult (if not impossible) to measure actual utilities and the welfare in a real system. Because actual market data that reveal detailed information on utility generation is quasi not existing, theoretical models are limited to specific aspects as otherwise the real world could not be handled or modeled. As a consequence, there is no academic literature that evaluates the currently achieved economic value of crowdfunding. Research in the field of crowdfunding even seems to circumvent discussions that embrace aspects of utility because the provision of a comprehensive theoretical or empirical foundation of arguments often turns out to be difficult. We do not even find a consistent framework of utility in the field of crowdfunding that reveals a bigger picture of utility generating processes and the interactions of important influences.

In this paper, we address two main research questions: (1) *how can utility be consistently conceptualized in the context of crowdfunding* and (2) *what are the main influences on utility generating processes?* Thereby, we regard aspects of imperfect openness in the landscape of crowdfunding. The notion of *openness* refers to a "kind of transparency" that is often "seen in terms of access to information especially within organization, institutions or societies" (Peters and Britez, 2008). Openness also refers to institutions or individuals opening processes to the public for collaboration and cooperation. We emphasize that openness should not be interpreted in terms of a dichotomy. There are not only 'open' and 'not open' processes, but there is a wide range between these extrema. In this context, we refer to *imperfect openness* whenever processes can be characterized by open aspects but still reveal distinct components or features which are kept intentionally or unintentionally closed and which are, thus, not open. An example for imperfect openness is the situation in which a company opens parts of a program's source code in order to allow the public to implement further features for the program while other parts of the source code are kept secret in order to prevent losing competitive advantages. As we will show, such imperfect openness can have important influences on the generation of utility in crowdfunding and deserves, thus, more attention in crowdfunding research.

This paper proceeds as follows. First, we provide information on crowdfunding as well as its principles and give an overview of relevant research in the field. Next, we discuss the notion of utility in a general context. After this section, we address utility in the landscape of crowdfunding and discuss the conceptualization of utility in this specific context. Subsequently, we identify the stakeholders of crowdfunding and describe what sources of utility are relevant for funders' funding decision making. Drawing on these aspects, we discuss the influences on utility-generating processes and regard especially aspects of imperfect openness in crowdfunding. Finally, we provide a discussion, give an outlook on future research, and, then, conclude.

2 Background and Related Research

2.1 Online crowdfunding platforms

The main principle of crowdfunding, i.e., asking a crowd of people for monetary support, is rather old. A famous historical example is the pedestal of the Statue of Liberty in New York. This pedestal was financed by many small contributions of American and French people (Dresner and Steven, 2014). Belleflamme et al. (2014) define that online crowdfunding "involves an open call, mostly through the Internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes". This definition also regards the different types of crowdfunding. Typically, literature distinguishes between five different types of crowdfunding (Abushaban, 2014; Rossi, 2014; Schramm and Carstens, 2014): (i) *donation-based crowdfunding* [funders are not compensated for funding], (ii) *reward-based crowdfunding* [funders are compensated by nonfinancial material or immaterial rewards, such as books, CDs, or services], (iii) *lending-based crowdfunding* (also called peer-to-peer lending or crowdlending) [funders are compensated by interest payments], (iv) *royalty-based crowdfunding* [funders receive royalty payments for patents/licenses/etc.], and (v) *equity-based crowdfunding* (also called crowdinvesting) [funders are compensated by shares/equity and participate in profits generated in future].

On crowdfunding platforms, capital-seeking project initiators and potential funders meet each other. Project initiators present and describe their ideas and plans on the platform and attempt to convince funders to back the project by their monetary contribution. Two key parameters of crowdfunding campaigns are the funding goal (e.g., USD 12.000) and the funding period duration (e.g., 30 days). While on some platforms (e.g., on giveforward.com) the project initiators can keep the collected money in any case (KIA: *keep-it-all model*), on other platforms (e.g., on kickstarter.com), the project initiators receive the money only if the sum of collected money exceeds the defined funding goal by the end of the funding period (AON: *all-or-nothing model*). Finally, the funding outcomes of campaigns are the result of the decisions and behaviors of all individuals concerned. These decisions and behaviors are driven for the most part by utility considerations of the respective individuals.

In reward-based crowdfunding, we observe store-like structures because rewards are received ('bought') in exchange for money and consumed (Belleflamme et al., 2015). An important difference to regular web stores is, however, that funders pay ('invest') a distinct period of time before they receive the goods. Often, the items are not yet produced or not even developed so that funders have to wait weeks or months until delivery. Due to information asymmetry, funders do not know the real quality of projects or whether project initiators are trustworthy or not. Funders that have invested money into crowdfunding projects are exposed to a certain level of risk. Therefore, potential funders assess all available information and estimate a project's quality (Mollick, 2014).

2.2 Research on crowdfunding

Academic research has already turned towards crowdfunding and has begun to investigate related phenomena. In this section, we present relevant literature on the topic of crowdfunding in order to help to orientate in the field. For clarity, we divide literature in three main streams: (i) *campaign success*, (ii) *funder behavior*, and (iii) *platform design, functionality, use, and social impact*.

(i) One of the largest streams of literature in the area of crowdfunding deals with the topic of campaign success. The initiators present their projects on a platform to the crowd. Therefore, they need to select appropriate information for the presentation and have to decide on how this presentation should be set up and designed. As a result, project initiators are highly interested in what factors contribute to successfully reaching the targeted sum of money, i.e., the funding goal. Research has addressed this question and has identified several factors that are related to funding success. Research has shown that crowdfunding campaigns with a higher funding goal are less likely to reach the defined funding goal (Koch and Siering, 2015; Mollick, 2014). Furthermore, campaigns with a longer funding period are

less likely to be successfully funded as this might be seen as a lack of confidence among initiators (Mollick, 2014). Next, it has been found that the level of information plays an important role. The more textual information is provided, the more likely is funding success (Barbi and Bigelli, 2015; Koch and Siering, 2015; Pitschner and Pitschner-Finn, 2014). Moreover, the use of media is crucial. The provision of videos supports funding success (Koch and Siering, 2015; Mollick, 2014) and also the number of pictures is positively related to the success of a campaign (Koch and Siering, 2015). Communication is another important success factor. Active communication via updates and comments concerning the project on the platform supports funding success (An et al., 2014; Kuppaswamy and Bayus, 2013). Communication through social networks, e.g., Twitter or Facebook, is important as well. The dynamics of social networks function as a multiplier and support the word-of-mouth that can be valuable advertising for the campaigns (Li and Duan, 2014). Research has shown that the principle of reciprocity is valid in the context of crowdfunding. Here, it has been revealed that project initiators who have backed other projects by funding before are more likely to reach funding success (Zvilichovsky et al., 2014). Also initiators who have created other campaigns on the platform before are more likely to reach funding success of their campaigns (Zvilichovsky et al., 2014).

(ii) Another large stream of literature addresses the behavior of funders. This stream of literature is to a certain extent related to the literature on campaigns' funding success. However, here, the focus is not on the resulting funding outcomes of campaigns but on the funders and their decision making. Research has addressed the question of why individuals participate in crowdfunding (Gerber et al., 2012). Agrawal et al. (2015) find that family members and friends fund relatively early in the funding cycle of a project compared to other funders. Although the size of the funding goal has a negative influence on funding success (Koch and Siering, 2015; Mollick, 2014), it has been found that the size of the funding goal has a positive influence on the number of funders (Li and Duan, 2014; Pitschner and Pitschner-Finn, 2014) and the mean of funding contributions (Pitschner and Pitschner-Finn, 2014). Moreover, projects with a higher funding goal are less often funded by occasional investors compared to frequent investors (An et al., 2014). Concerning funding contributions, an anchor effect has been found, i.e., funders use the contributions of previous supporters as a benchmark for own contribution sizes (Burtch et al., 2013). Furthermore, funders seem to prefer campaigns of culturally similar and geographically proximate initiators (Burtch et al., 2014). Kuppaswamy and Bayus (2013) have argued that many funders do not "contribute to a project that has already received a lot of support because they assume that others will provide the necessary funding".

(iii) Research has regarded aspects concerning crowdfunding and crowdfunding platforms in general. Cumming and Johan (2013) address the regulation of crowdfunding and legal aspects. They argue that platforms of equity-based crowdfunding prefer "fewer disclosure requirements and fewer restrictions on free trading of crowdfunded shares" while investors "demand more disclosure, limits on amounts entrepreneurs can raise, and lower thresholds for audited financial statements". It is also shown that crowdfunding has the power to increase social welfare in form of helping people (Mutengezanwa et al., 2011). And, finally, research has investigated in which ways crowdfunding platforms can be used by project initiators and start-up founders (Braet and Spek, 2010; Ley and Weaven, 2011).

2.3 Utility and welfare

A quick look in an online encyclopedia tells us that *utility* "is an economic term referring to the total satisfaction received from consuming a good or service" (Investopedia, 2016). This definition refers to a more *psychological view* on utility, which "tends to focus on interpreted objects and events as the carrier of utility, and on experiences of pleasure or satisfaction as the proper measure of it" (Kahneman and Varey, 1991). On the contrary, there is also a more *objectivist view* of utility which "focuses on tangible goods as the carrier of utility, and on observable preferences as the proper measure of it" (Kahneman and Varey, 1991). Kahneman and Varey (1991) explain that they prefer the psychological view because the objectivist view assigns utility "mainly (or only) to tangible and objectively identifiable aspects of the decision maker's situation at a given time" and ignores central facts,

such as adaptation and loss aversion. In this context, adaptation means that an individual perceives or values things differently according to personal habits and previous events. The psychological view puts "more weight on intangibles as factors of utility" and considers also "emotions such as hope, fear, disappointment, regret, pride, and guilt, which do not fit easily into an objectivist treatment" (Kahneman and Varey, 1991). Kahneman and Varey (1991) distinguish between three types of utility: (i) experience utility, (ii) preference utility, and (iii) predicted utility. "The three notions of utility are separable in measurement as well as in principle" (Kahneman and Varey, 1991). The (i) *experience utility* describes "the hedonic quality of experience, broadly construed to include satisfaction as well as pleasure" (Kahneman and Varey, 1991). Therefore, personal adaptations and individual perceptions are regarded. As an example, compare the level of experience utility of winning one million dollars for the first time to the level of experience utility of winning one million dollars for the thirtieth time. Experience utility from the same event can be very different according to who is asked. This experience utility can be further separated into an *instant utility*, which is reported or measured in real-time, and a *remembered utility*, which is evaluated in a retrospective view (Kahneman et al., 1997). Next, the (ii) *preference utility* (or *decision utility*) (Kahneman et al., 1997) is the "value associated with a particular consequence in a decision context" (Kahneman and Varey, 1991) and the (iii) *predicted utility* (or *expected utility*) is an "individual's reflective assessment of future experience utility" (Kahneman and Varey, 1991). According to which notion of utility is chosen, different measurements need to be applied and, as a result, the assessed levels of utility can vary. We will adapt and transfer these different aspects of utility to the context of online crowdfunding further below.

While the objectivist position "favors a notion of utility based on publicly (objectively) observable choices", the psychological position takes into account intangible aspects and unobservable factors which might influence utility (Kahneman and Varey, 1991). However, relating utility "to some quantity of satisfaction, happiness, goodness or welfare" (Alchian, 1953) is difficult because emotions, such as hope, fear, disappointment, regret, pride, and guilt (Kahneman and Varey, 1991) are not easy to quantify or to compare. However, although it might be favorable to concentrate on aspects that reveal a higher level of observability, a pure objectivist approach is not able to explain individuals decisions or reactions concerning utility if "intangible factors account for much of the variance" (Kahneman and Varey, 1991).

Usually, the total *welfare* of a community is defined as "the sum of the welfares (utilities) of all constituent individuals" (Lange, 1942). Pigou (1920) argues that money is "one obvious measurement available in social life" and defines *economic welfare* as that "part of social welfare that can be brought directly or indirectly into relation with the measuring-rod of money". For a broader definition of welfare, the more psychological view of utility advises to include further aspects that might not be perfectly measured by money (Kahneman and Varey, 1991). Again, a consistent definition of utility is needed in order to end up with a proper definition of total welfare. Optimally, welfare embraces all of the various facets of experience utility of each individual. A typical question that is asked in the context of welfare economics is "to what extent does perfect competition lead to an optimal allocation of resources?" (Arrow, 1962). However, there are three "classical reasons for the possible failure of perfect competition to achieve optimality in resource allocation: indivisibilities, inappropriability, and uncertainty" (Arrow, 1962). These reasons are likely to have an impact on individuals' level of utility and overall welfare. Consequently, markets need to consider possible market failures in order to achieve optimal welfare. Typical examples of market failure, which can result in non-optimal welfare, are missing information and information asymmetry (Akerlof, 1970), decisional power of some individuals, groups, or monopolies (Williamson, 1972), and non-internalized external effects, i.e., so-called externalities (Randall, 1983; Williamson, 1971).

Such externalities are usually defined as situations in "which the utility of an affected party is influenced by a vector of activities under his control but also by one or more activities under the control of another (or others)" (Randall, 1983). Here, it becomes apparent that influences of other individuals need to be embraced when discussing utility and welfare. Whenever many individuals and diverse parties are concerned, overall performance, e.g., of companies or markets, cannot only be measured by

revenues that are generated (Harrison and Wicks, 2013). In this case, a multi-stakeholder approach is needed to measure the performance or the resulting overall welfare. Optimally, performance should be measured as the "total value created by the firm through its activities, which is the sum of the utilities created for each of a firm's legitimate stakeholders" (Harrison and Wicks, 2013). Stakeholder theory (Freeman, 1994; Freeman et al., 2004) advises to regard responsibilities concerning all stakeholders concerned whenever decisions are made. Here, a stakeholder is "any individual or group that is directly or indirectly affected by an organization's decisions" (Certo and Certo, 2012). The decisions that individuals make are usually not random. Individuals will normally base their decision making on, for example, available information, personal perceptions, and on individual preferences. However, as stated above, information asymmetry and a lack of information lead to uncertain outcomes and stakeholders need to form beliefs about probabilities. This assumption is valuable although individuals might not exactly act rationally and perfectly according to axioms of utility maximization (Quiggin, 1982).

3 Utility and Welfare in Crowdfunding

Research on crowdfunding has started to refer to the notion of utility relatively early (e.g., Harms, 2007). Especially when analyzing funding behavior or funding motivation, it seemed to be vital to assume that funders apply an underlying measurement of their benefits as a basis for their funding decision making. Based on an expected/predicted level of benefits, funders decide which projects are worth funding (Agrawal et al., 2013; Mollick, 2014). Thus, we assume that individuals' decisions are not random but based on preferences and assessments of situations and available alternatives. In the following, we provide a conceptualization of utility to allow for a better understanding of this notion in the context of crowdfunding.

3.1 Conceptualization of utility

When reviewing research articles on crowdfunding, we have become aware of the fact that most articles use the term *utility* rather imprecise and do not specify it more exactly. As introduced in section 2.3, several concepts of utility have been defined in the literature, e.g., experience utility or predicted utility. In this section, we will discuss these concepts in the context of crowdfunding. The funding processes are mainly driven by the decision making of funders. Thus, we discuss the conceptualization of utility from the perspective of funders. Moreover, we provide a graphical representation (Figure 1) that illustrates the concepts of utility in the crowdfunding cycle.

Before a funder decides which projects to fund, s/he will form an opinion about the available alternatives of active crowdfunding project campaigns, i.e., campaigns A, B, and C in Figure 1. We will discuss the figure from the perspective of a fictive funder, who could be any of the funders on a platform. This funder will attribute a certain *predicted utility* (PU) to each crowdfunding campaign. This PU (Kahneman and Snell, 1992) is influenced by several parameters and is based on a certain amount of information that is available to the funder. PUs are not static but dynamic because information, perception, and environmental parameters vary over time. At a certain point of time, the funder will make the decision of which campaign(s) to back by funding. In the case of Figure 1, we assume that exactly one of all alternative campaigns is supported by the funder. This decision is connected with a certain level of *decision utility* (DU) (Kahneman and Snell, 1992; Kahneman and Varey, 1991). While a funder can attribute a PU to whatever campaign is regarded, the DU is directly connected with the decision that is made. This DU is somehow observable at that point of decision in the form of a preference (Kahneman and Snell, 1992): the funder prefers campaign A over all other available campaigns. Without visible preferences, DU keeps usually unobservable (Kahneman and Varey, 1991).

For a generalized case, we assume that the consumption of rewards does not happen in an incrementally short moment of time but is an experience that endures from point T1 (begin of experience) until another point of time T2 (end of experience) – both labeled in Figure 1. Typically the experience of utility is a process that endures a certain period of time. Kahneman et al. (1997) argue that "pleasure

and displeasure are attributes of each moment of experience, but the outcomes that people value are normally extended over time". This utility can originate either from the consumption of the funding compensation, from the fact of having helped other people, or from any other source connected to the funding decision. Consequently, these various sources of utility can have different starting points, e.g., while the funder can experience utility immediately from having helped others, the starting point of reward consumption may start later. In a later section, we will discuss possible sources of utility in the context of a funding decision in more detail. We assume that before the point T1 and after the point T2 no utility is experienced. This assumption is without loss of generality because both start and end point can be displaced as required. From point T1 on, the funder experiences a certain *marginal instant utility* (MIU) at each incrementally short moment of time. For each point of time between T1 and T2, this MIU can be aggregated to a certain level of *aggregate instant utility* (AIU). After T2 is reached, no further IU is obtained. For measurement of IU, one imagine that the funder could instantly report his experience utility (EU). The time after immediate reporting, however, EU can no longer be correctly described because experienced satisfaction and pleasure are subject to circumstances, new experiences, and environmental parameters (Kahneman and Varey, 1991). Retrospectively, these factors lead to a certain level of remembered utility (RU), which is also dynamic and depends on several parameters. In other words, after immediate reporting, the funder can only tell about the remembered utility RU.

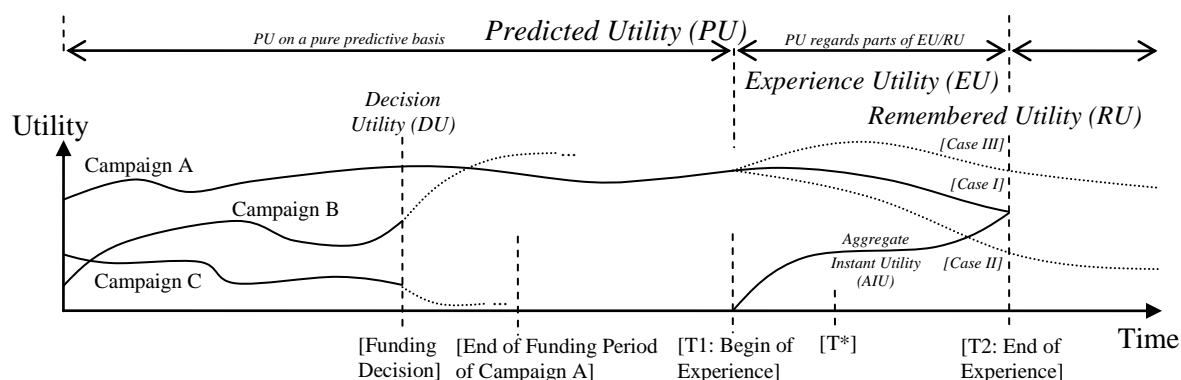


Figure 1. The concept of utility in the crowdfunding cycle.

Between the point of funding decision and the begin of experience (T1), PU bases purely on funders expectations. However, for any point of time T^* between T1 and T2, the funder knows at least what level of EU has been experienced so far – while the future EU, i.e., the utility that will be experienced between T^* and T2, is not known. Until the end of the experience in T2, the funder do not know the level of EU that will be finally reached. As a result, between T1 and T2, PU becomes a mixture of the EU that has been experienced so far ($T1 - T^*$) and the expectation of the EU that will be experienced in future ($T^* - T2$). As we have explained above, circumstances lead to the funder will not remember exactly the AIU but a certain level of remembered utility (RU). If we assume that exactly the instant utility is remembered [case I of Figure 1], DU and the AIU will meet in one point in T2. If, however, remembered utility RU differs from AIU, predicted utility need not to meet AIU in T2 (cases II and III). After the point of T2, no further utility is experienced and the funder reveals a certain level of RU, which again may dynamically develop depending on further experiences and environmental factors. Consequently, utility have to be seen as a dynamic and time-dependent concept. Furthermore, this discussion of utility shows that we have to differentiate between different notions of utility in order to capture the whole process correctly. If we only refer to *utility*, it is not clear how this has to be interpreted in a given situation. The influences that lead to a RU being different from the AIU are neither traceable nor controllable. No mechanism could ever predict the future effects and influences that will affect the level of remembered utility. Therefore, we argue that it is reasonable to focus on AIU instead of RU to be enhanced in crowdfunding decision making. In the following, we use *utility* as the (total) aggregate instant utility that funders experience if no further specification is given.

3.2 Identifying stakeholders

Typically research articles discuss mainly aspects of funders' utility (e.g., Agrawal et al., 2013; Belleflamme et al., 2015; Valančienė and Jegelevičiūtė, 2014) and disregard other parties and total welfare. Therefore, in the next step, we need to identify the relevant stakeholders in order to be able to discuss the utility of the various stakeholders concerned. Freeman (1984) describes that stakeholders are "affected by the achievement of the organization's objectives". In the context of crowdfunding, the stakeholders are not only affected by the decisions and actions of the organization, i.e., the crowdfunding platform, but also by the decisions of other stakeholders, e.g., by funders' funding decisions or regulators' policies. "Stakeholders are not isolated groups but act and interact with each other to create a dynamic environment (Laplume et al., 2008)" (Beaulieu et al., 2015). Consequently, a sole focus on funders' utility is insufficient and for any consideration of total utility generated within a system or a company, the respective stakeholders need to be identified. Certo and Certo (2012) and Freeman (1984) define distinct groups of organizations' stakeholders. In Table 1, we adapt their classifications of stakeholder groups for the case of crowdfunding. The table gives an overview of the stakeholders that can be identified in the crowdfunding context. According to their specific roles, all stakeholder groups derive a certain utility from crowdfunding and influence funding processes as well as utility generation in a certain way.

General Classification of Stakeholder Groups	Stakeholder Groups in Crowdfunding
stockholders / owners	(P) platform operators
consumers / customers	(I) project initiators, (F) funders
local communities / society	(N) concerned individuals (affected from funding results)
suppliers	(S) web hosts, advertizing partners, etc.
lenders / financiers	(L) platform financiers
government / government agencies	(G) authorities, regulators, etc.
employees and unions	(E) developer, service staff, etc.
competitors	(C) other platforms, traditional money providers
interest groups	(O) environmentalists, social organizations, etc.
media	(M) news agencies, Facebook, Twitter, etc.



Table 1. Stakeholders in crowdfunding.

Crowdfunding platforms are typically seen as two-sided markets (Belleflamme et al., 2015) because two distinctly different groups of *customers* (of the platform) can be identified, i.e., (I) project initiators (often called 'founders', 'borrowers', 'fundraisers', or 'creators') and (F) funders (often called 'investors', 'lender', 'supporters', or 'backers'). These two stakeholder groups determine what campaigns are launched and what campaigns are funded, respectively. However, (P) *platform operators* can also have an import influence on the funding processes and they benefit from the funding activities by applying fees. Furthermore, there is a group of (N) *concerned individuals* that profit (more or less directly) from crowdfunding results, i.e., for example, people in developing countries who are helped with the money collected or people who watch movies that have been funded by crowdfunding campaigns. We also count those people to this group of stakeholders that can buy products that have been developed using money collected through crowdfunding campaigns.

Because these four (P, I, F, N) are the most obvious stakeholder groups, it is comprehensible that these deserve special attention. However, reducing research discussions only to these four groups will limit the potentials of future IS research in uncovering interesting and important details of how IS influence economics and society. Therefore, we emphasize that also (L) *platform financiers*, (G) *government and government agencies*, (S) *suppliers*, (E) *platform employees*, (C) *competitors*, (O) *interest groups*,

and (M) *media* play important roles in funding processes and utility generation. We subsume these groups together with the group of (N) concerned individuals to a more general group of (T) *third parties*. We call these 'third parties' because these individuals are affected by funding processes and can have an influence on funding results, but they are not personally involved into the funding relationship which only consists of initiators and funders on the platform. The fact that one individual can take more roles does not harm this categorization. In this case, the different roles of one individual can still be classified as proposed above.

3.3 Identifying utilities relevant for funding decision making

The stakeholder group of funders has an important role in the crowdfunding processes: funders make the funding decisions and, thus, become the source of funding for the campaigns. However, the assumption that funders only consider their direct benefits does not hold. Investigations have shown that funders regard many other aspects when deciding which projects to fund (e.g., Gerber et al., 2012; Mollick, 2014). In Figure 2, we provide an overview of the utilities that are experienced in the crowdfunding cycle from the perspective of funders. The figure embraces the stakeholder groups of crowdfunding identified above: (F) funders, (I) initiators, and (P) platform operators as well as (T) third parties. There is a flow of money from the funders towards the project initiators ('funding') and towards the platform ('payments', e.g., fees). Moreover, different sources of utility are depicted in the figure [U1 – U7]. We use the term *direct utility* for utility that originates directly from an experience, while *indirect utility* refers to utility that is derived from the satisfaction that others are experiencing utility. In the following, the indications in brackets refer to the various sources of utility.

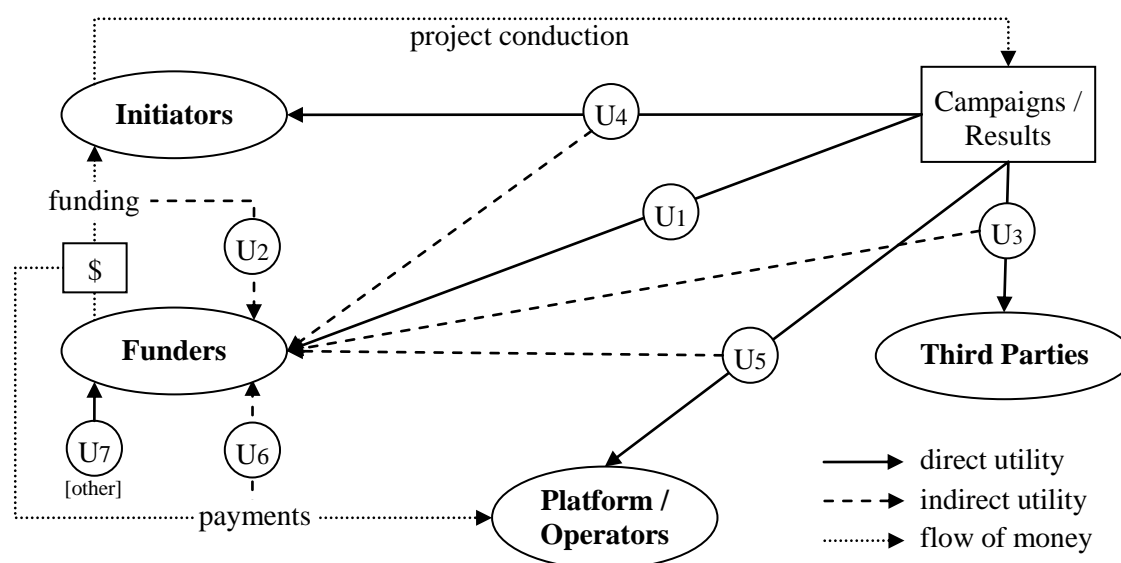


Figure 2. The origins of utility in crowdfunding from the perspective of funders

[U1] The most obvious utility that funders experience originates from the funding compensation (Gerber et al., 2012; Haas et al., 2014; Kuppaswamy and Bayus, 2013). In reward-based crowdfunding, funders receive, e.g., special items or technology equipment, in peer-to-peer lending and equity-based crowdfunding, they receive monetary compensations. As there are only differences in the type of compensation, we need not to differentiate between the various types of crowdfunding at this point. Sometimes, however, funders decide to support campaigns that obviously do not enhance funders' (economic) utility or they even decide to donate money without taking any compensation in exchange for funding. Such decisions could not be well explained by a pure objectivist approach that concentrates mainly on observable objects, like rewards or financial compensations (Kahneman and Varey, 1991). Here, other sources of utility must be responsible for the results of decision making.

Very important influences on funding decisions are the utilities that funders derive from the fact that other people are experiencing utility as a consequence of the funding decision. [U2] Funders, for example, may be content with the fact that they have helped others by supporting them with money (Gerber et al., 2012). [U3] Funders do also experience utility from the fact that the supported project helps other people (Gerber et al., 2012; Haas et al., 2014; Kuppuswamy and Bayus, 2013). [U1, U3] Moreover, funders obtain utility from project results that are dedicated to community or society, like building parks or monuments. [U4] Sometimes a project initiator starts a campaign to help himself/herself, e.g., by collecting money for medical treatments (Burtch and Chan, 2014). Also this can mean utility for the funder who enjoys to help altruistically. [U5] Less obviously, a funder can also derive utility from the fact that the platform experiences utility. For example, if a campaign triggers attention in media, the platform will win new users, who are of value for the platform. If these new users initiate campaigns and fund actively, also the funder will experience utility from new and interesting campaigns as well as an active community on the platform. [U6] Maybe a funder even obtains utility from the fact that fees are paid to the platform because s/he values the platform itself – regardless of whether the funder pays this fee directly or the initiator has to pay. [U2] There are further reasons for supporting projects that do not bear any economic utility from a funder's perspective. For example, if the campaign has been initiated by friends or family members, it might be important to help funding in order to avoid disgruntlements, discussions, or disputes. Agrawal et al. (2013) call this phenomenon *social obligation*. [U7] Finally, we also find utility that is not directly connected to any specific funding action of campaigns. Funders derive, for example, utility from being socially connected via the platform and from being part of the community (Gerber et al., 2012). The sources of indirect utility are important examples for the intangible factors mentioned in context of the psychological view on utility.

These shortly sketched sources of utility [U1 – U7] can have an important influence on funding decision making. However, we have to distinguish between utilities that are decision-relevant and utilities that do not influence funding decision making. First, only utilities that are known to the funder can be regarded in decision making. Unknown facts can, by definition, not be considered in decision making. Next, factors that are not relevant to the funders are also excluded from decision making. If the funder does not care, for example, [U5] about the utility that the platform may derive from a specific campaign, then this aspect is not decision-relevant. Moreover, only those utilities are relevant that can be tied to a specific decision. [U6] Maybe the funder values that the platform is supported by fees. However, the platform always receives a fee, regardless of which campaign is supported. As a result, this aspect is not decision-relevant. Based on the decision-relevant utilities, each funder estimates a certain level of *predicted utility* for each campaign at choice. Then, the funder compares all predicted utilities and decides about funding actions. By this, each funder tries to maximize own predicted utility based on information available. However, there are several influences that affect funders' decisions making.

3.4 Influences on funders' decision making and imperfect openness

When maximizing own predicted utility, individuals from all the stakeholder groups have a reason to influence decision making in a way that enhances their predicted utility. So far, this statement is non-judgmental because it is not clear in how far overall welfare is affected if individuals maximize their utility. Figure 3 gives an overview of these influences in the crowdfunding context. Funders will (consciously or subconsciously) regard such influences when predicting the utilities. As we will explain further below, these influences often stem from aspects of imperfect openness.

On crowdfunding platforms, initiators of projects release an open call for financial support and address the Internet crowd. However, the openness of such a call is naturally constrained by funders' limited possibility of becoming aware of all of the projects. While an open call could theoretically be discovered by anyone, the call will ultimately reach only a relatively small group of people. It is practically impossible to coordinate all calls for funding across all existing platforms worldwide. Nevertheless, on a specific platform, it is at least possible to implement measures for a better coordination and interme-

diation between funders and investors. Platforms need to help funders to oversee the available projects because funders cannot look through all projects on a platform manually. Therefore, platforms need to offer the right measures for searches and could also propose the right projects to potential funders. If funders reveal their tastes and preferences, the platforms can propose projects fitting best by means of smart search algorithms. Such algorithms help funders to find more appropriate funding and investment opportunities. However, platform operators also have the power to increase the visibility of few projects, e.g., via overview pages and recommendations (Koch, 2016). As a result, especially good running projects might be put in the center of funders' attention because this also means an attractive source of revenue for the platform. If platforms focus on revenue-generating projects, other projects that might also be of high value come off badly.

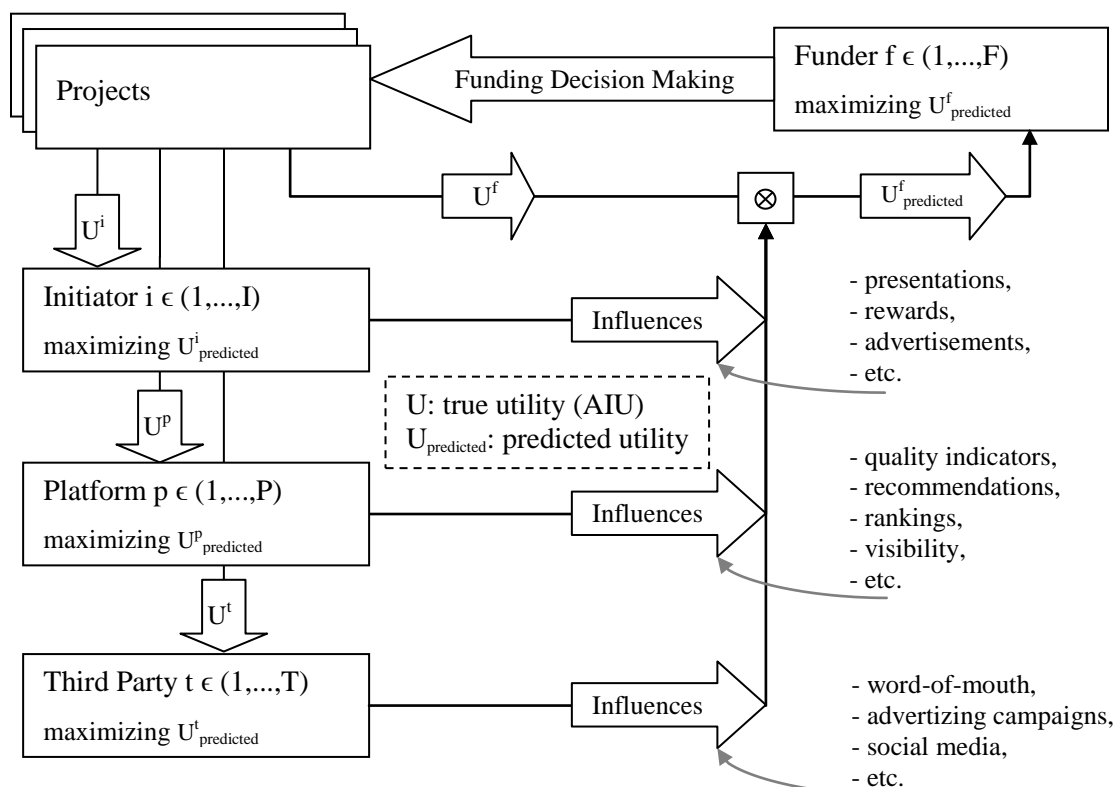


Figure 3. Influences on funders' decision making.

Funders need appropriate information about the projects on the platform. While initiators open their ideas to the public in order to acquire financial resources, they do not necessarily reveal all information connected to it. Research has shown that funders are relatively sensitive for any kind of information and consider as much information as possible. Information is particularly used as a signal of a project's level of quality or as a signal of initiators' trustworthiness (Mollick, 2014). In this context, research has argued that information asymmetry between funders and project initiators is one of the central problems in crowdfunding (Belleflamme et al., 2014). Initiators can relatively freely decide on what specific information will be disclosed. Before funders decide for supporting a project by their funding, they collect information and form an opinion. For the funding decision making, funders compare predicted utilities. However, the predicted utilities must not be equal to the utility that will be really experienced in future. There are several reasons for a potential discrepancy between predicted and experienced utility, for example, (i) missing information, (ii) wrong information, (iii) wrongly interpreted information, or (iv) changes concerning environmental factors and circumstances. As a consequence, the experienced utility can be higher or lower than predicted. A better funding decision making is obtained if the discrepancy between predicted and experienced utility is minimized. In general,

initiators have the incentive to exaggerate, to dissipate funders' doubts, and to present their projects in very good light as this might increase the funding collected. Project founders can decide on the degree of informational openness regarding their crowdfunding campaign. However, when comparing projects and deciding for funding, funders need the right information about these projects in order to be able to evaluate the project sufficiently and correctly. Otherwise, it might happen that they fund projects that do not lead to the best utility for them. In order to allow for optimal decision making, all necessary information must be available. Initiators might not intentionally hold back information – sometimes they just do not know which details are of importance. Therefore, the platform need to publish guidelines in order to help initiators describing their project as best as possible.

In some cases, initiators intentionally hold back information because they have the intention to defraud. These initiators conduct campaigns on platforms with the dishonest intend to collect money without returning the funding compensations as promised. As a result, some funders lose their money to deceivers who keep the money without returning the compensation. Proper fraud detection mechanisms need to be in place in order to identify such fraudulent projects as early as possible (Siering et al., 2016). Of course, deceivers also generate utility for themselves by collecting the funding. However, this group of participants cannot be seen as "legitimate stakeholders" (Harrison and Wicks, 2013) and should, thus, not be included into overall welfare considerations because of moral reasons.

On platforms which apply an all-or-nothing model of crowdfunding, small amounts of missing money can impede a payout of the collected funding. If the goal amount of funding is not reached, no money is paid out to the project initiators in this model. As a consequence, the project cannot be conducted as planned, all of the funders receive back their money, and no funding compensations are distributed. Platforms should implement means that help almost-financed projects to finally reach their goal. One could even think about redistribution mechanisms that help to find a better trade-off between underfunded high-value projects and massively overfunded commercial projects. In the case of massively overfunded projects (Koch, 2016), an appropriate pricing of the rewards has attracted a high number of funders. Here, a tax could be implemented for all funders that fund after the project has reached its funding goal. Funders who are burning for receiving the rewards will accept the tax and pay it. The money that is collected from this tax is not for the platform but for redistribution to underfunded high-value projects.

Individuals of the group of third parties might also have an incentive to influence the funding process. If they favor the project, they will, e.g., support the word-of-mouth in social media and try to convince others to fund the project. If they don't like the project, they might even do the opposite and post messages that are disadvantageous for the funding process. Aside from social media, each crowdfunding project page is usually open for comments and questions of funders. However, posting comments does not allow for easily evaluating opinions of other platform participants. If a high number of comments has been posted, potential funders have a lot work ahead if they really want to assess all previous comments of all projects at choice. For this reason, a rating system could help to connect a project with scores that would help new potential funders to regard the opinion of others. Such a score could also be used to identify the projects of high-value that should benefit from the tax described above.

After the transfer of compensations is completed, the funder is the new owner of rewards or the owner of 'shares' of an enterprise. If a compensation does not lead to the predicted utility, the funder might think of an exit strategy in order to sell this compensation. Especially in lending-based crowdfunding or equity-based crowdfunding, it is not easy to sell crowdfunding values, such as shares, because it is difficult to find interested buyers. Here, special secondary markets are needed that allow for an intermediation between sellers and buyers of crowdfunding values. Recently, some of such secondary markets evolved (e.g., cfxinvesting.com). But still, this has not yet become a general solution for all crowdfunding values. Such secondary markets could increase utility for both those who favor to sell and those who intend to buy crowdfunding values. As a result, it is strongly advised to implement good-functioning secondary markets for crowdfunding to further increase the level of openness.

4 Discussion and Outlook

The frequent use of the notion of 'utility' in crowdfunding research (e.g., Agrawal et al., 2015; Belleflamme et al., 2014; Belleflamme et al., 2015; Gelfond and Foti, 2012; Wheat et al., 2013) has called for a general discussion and conceptualization. Such a conceptualization is by no means an end in itself but builds the necessary foundation for discussions and investigations. For instance, the impressive differences between funding results of underfunded and overfunded projects (Koch, 2016) are an outstanding example of the distinctly different utilities that individuals generate through crowdfunding. The important question is whether such inequalities are a necessary economic result that leads to optimal welfare or whether overall welfare is reduced because of market failure. Recently, Kim et al. (2016) have investigated the influence of overfunded projects on other projects on the platform. However, they find both positive and negative effects of overfunded blockbuster projects. This shows that an answer to the question is not self-evident and deserves more attention in future research.

While the real-time observation and measurement of all utility-generating processes on crowdfunding platform are unrealistic, a modeling of the funding processes by means of computer simulations can provide new and interesting opportunities. A simulation provides the possibility to capture individuals' utility by numbers if proper inherent preferences are simulated. We have discovered a relatively new study (Yang et al., 2016) that addresses the dynamics in crowdfunding and proposes a model of funding processes by means of such a simulation. This study is a good example that utility can be captured in simulations in order to gain new insights about the economic value of funding results. However, although the article uses the notion of utility, which is central to the funding decision mechanism proposed, nothing is said about it in detail or how it relates to utility that is experienced by funders in the real world (Yang et al., 2016). The questions of how utility is experienced in reality and of how decisions are made or influenced are of high importance in order to make models more realistic. Regarding platform data and results from experiments and surveys helps to design and parameterize realistic simulations. Then, such simulations could be applied, for example, as decision support tools and allow for testing alternative funding models as well as evaluating funding results or potential regulatory policies.

The insights provided throughout this paper are not limited to the topic of crowdfunding but could also be transferred to crowdsourcing in a more general context. Here, the co-workers take the role of the decider and decide which project(s) they collaboratively support by their working power. The basic idea behind such activities is to collaborate by sharing "assets, resources, time and/or skills" (European Commission, 2016). Consequently, the complete collaborative economy bears comparable constellations as described in this manuscript. The discussion of this complete field, however, is beyond the scope of this paper and, therefore, left for future research.

5 Conclusion

While a number of research papers in the field of crowdfunding touch aspects of utility, we did not find any paper that provides a framework for the notion of utility in this area. As a result, existing research circumvents conceptualizing utility and ignores important aspects. Therefore, in our paper, we present a framework that conceptualizes utility in the field of crowdfunding and considers important aspects of the utility generation processes in the context of online platforms. We show that the different notions of utility that have been developed and discussed in general literature also serve very well in the context of crowdfunding. We argue that the current discussions in IS research on crowdfunding are mostly limited to distinct processes on platforms and interactions of funders and project initiators. However, IS research needs to broaden its horizon towards other stakeholders and towards the overall utility generated in crowdfunding. We believe that there is much potential uncovered that calls for being unleashed. We need more research that evaluates the overall results in order to develop a bigger picture on how crowdfunding serves best all of its stakeholders. Therefore, we motivate IS research to investigate how funding models and funding principles can be optimized in order to create even higher value for crowdfunding participants and society in general.

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