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Civic crowdfunding research: Challenges, opportunities, and future agenda

Alexandra Stiver, Leonor Barroca, Shailey Minocha, Mike Richards and Dave Roberts
The Open University, UK

Abstract
Civic crowdfunding is a sub-type of crowdfunding through which citizens, in collaboration with government, fund projects providing a community service. Although in the early stages of development, civic crowdfunding is a promising area for both research and application due to its potential impact on citizen engagement, as well as its influence on the success of a wide range of civic projects ranging from physical structures to amenities and local services. However, the field remains under-addressed in academic research and underdeveloped in terms of the number of civic projects posted to crowdfunding platforms. Acknowledging these issues, we outline the history of civic crowdfunding and describe the current landscape, focusing on online crowdfunding platforms established specifically for the funding of civic projects (Citizinvestor, ioby, Neighbor.ly, Spacehive). The challenges and the opportunities of civic crowdfunding are examined, and its distinguishing characteristics are outlined, including a consideration of the impact of social media and platform features. We then propose a research agenda to help shape the future of this emergent field.

Keywords
Civic crowdfunding, online community, social media

Introduction

A vacant lot across from Carnes Elementary School in Memphis is converted into an outdoor classroom with the help of ioby and online backers, offline volunteers, and

Corresponding author:
Alexandra Stiver, The Computing and Communications Department, The Open University, Milton Keynes MK7 6AA, UK.
Email: alexandra.stiver@open.ac.uk

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Table 1. Project numbers and funding success on civic crowdfunding platforms.[a,b]

	Established	# Projects total	# Projects successfully funded	% Funded
Citizinvestor	2012	23	15	65
Ioby	2009	282	97[c]	34
Neighbor.ly	2012	48	6	13
Spacehive	2011	279	33	12

[a]All information current as of 27 April 2014.
[b]Although not perfectly comparable in terms of type/scale, Kickstarter launched over 11,000 projects with 43% success rate in its first full year of operation (2010) (kickstarter.com/blog/2011-the-stats).
[c]As ioby defines funding success differently, this number represents the number of projects underway, not necessarily having met their full funding.

partnerships with an environmental non-profit and a city planner. *The Line*, a sculpture walk along the waterways of east London, has raised over £142,000 through 280 backers on Spacehive, including charitable trusts, art galleries, and individual supporters. In Elk Grove, California, the Mayor's office and Friends of the Library group have committed to matching online donations for iPads promoting digital literacy at the public library through Citizinvestor's *App A Day* project. These are all illustrations of civic crowdfunding, an emergent sub-type of crowdfunding.

Crowdfunding is identified as "a collective effort by people who network and pool their money together, usually via the Internet, in order to invest in and support efforts initiated by other people or organizations" (Ordanini et al., 2011: 444). Internet-based crowdfunding has seen extraordinary growth in the last few years in terms of total revenue, global spread, number of platforms, and diversity of applications (Massolution, 2013).

Civic crowdfunding is the funding of projects which, directly or indirectly, benefit from government funds, assets, or sponsorship, and may include the development of public assets (Davies, 2014: 17) such as public parks, sidewalk maintenance, and wireless Internet. Civic crowdfunding has attracted attention for its ability to channel citizen funds toward specific projects, as well as for its capacity to partner project creators with municipalities, organizations, and individual citizens interested in online and offline contributions. It is an appealing alternative source of funding at a time of constrained government budgets (Gray, 2013; Grill, 2012). Additionally, civic crowdfunding has great potential for non-financial benefits such as facilitating networking, and encouraging collaboration between citizens and government.

However, despite growing attention from global media sources, the field of civic crowdfunding has not attracted comparable academic interest and, as yet, lacks a deeper grounding in theoretical areas of influence and future direction (Leonard, 2013).

Project numbers and funding success rates (i.e. proportion of projects funded by the funding deadline) remain relatively low on civic crowdfunding platforms (Table 1). Furthermore, elements such as social media integration with platform features remain underdeveloped (Table 3). This signals the need for an acknowledgement of civic crowdfunding's current landscape and characteristics, as well as a research agenda to further understand, promote, and improve civic crowdfunding.

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The findings we present are the result of an investigation of civic crowdfunding based on qualitative research, consisting of a review of public media and literature; non-participant observation of platforms, 120 projects, and social media channels; and semi-structured interviews with three stakeholders from *Stevenson Square Green Makeover* project.

The current landscape of civic crowdfunding is illustrated through four platforms: three US-based civic crowdfunding platforms (Citizinvestor, ioby, Neighbor.ly) and one UK-based (Spacehive). We acknowledge that other countries have recently begun to investigate the use of civic crowdfunding, and we briefly cite several examples. We recognize that civic crowdfunding projects adhering to Davies' (2014) definition can also be found on general crowdfunding platforms such as reward-based platforms Indiegogo and Kickstarter, sites through which "funders receive a reward for backing a project" (Mollick, 2014: 3). Although we use both these platforms for reference and discussion, we limit our primary focus to civic crowdfunding platforms to make targeted observations and recommendations.

Using examples drawn from research, we describe the current landscape of civic crowdfunding. We note characteristics of civic crowdfunding as expressed across the four civic crowdfunding platforms identified for research. We outline challenges and opportunities of civic crowdfunding, and conclude with a proposed agenda for future research prioritizing understanding of platform features, optimizing effectiveness and impact, uncovering community elements, and applying existing crowdfunding research.

History and influences

Crowdfunding was first documented as a term in 2006, on the now-defunct fundavlog.[1] Its popularization began in 2008, with the establishment of the global reward-based crowdfunding leaders Indiegogo (2008) and Kickstarter (2009). Online civic crowdfunding platforms were established soon after: ioby (2009), Spacehive (2011), and Neighbor.ly and Citizinvestor (2012; Davies, 2014).

Civic crowdfunding is not a new practice. Iconic structures such as the New York's Statue of Liberty and the London's Royal Albert Hall have been funded, wholly or in part, through incremental citizen donations consistent with what is now known as civic crowdfunding (Davies, 2014; Hussey, 2012). We also propose five areas influencing the development of civic crowdfunding in its contemporary iteration: (1) crowdsourcing and understanding the crowd; (2) social capital, democratic participation, and collaborative models; (3) social impacts of volunteering and charitable giving; (4) public and private funding, and public–private partnerships; and (5) online activity.

Civic crowdfunding has emerged from the tradition of crowdsourcing, a practice rallying an unspecified "crowd" to provide incremental contributions toward a final project, product, or service (Howe, 2006). Research refining the definitions of crowdsourcing contribute to civic crowdfunding through identifying elements common to crowd activity, and clarifying who makes up "the crowd" (Estellés-Arolas and Gonzalez-Ladrón-de-Guevara, 2012).

Advantages derived from a collective are further explored through considering social capital, defined as "the aggregate of the actual or potential resources which are linked to …

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membership in a group" (Bourdieu, 1986: 248-249). This is relevant to civic crowdfunding, given its local community involvement and cooperation between stakeholders. Research confirms that benefits derived from social capital can be a strong source of power (Bourdieu, 1986) both to individuals and to communities (Portes, 2000).

Social capital also relates to political activity. Both Putnam (2000) and Skocpol (2003) note a decline in political and public involvement among US citizens. Putnam's (2000) research suggests strong linkages between social membership and civic engagement; decreases in the former impact on social lives of individuals, but can also affect government performance and the process of democracy. Although the online space might not replace the offline, Putnam (2000: 179) acknowledges that online relationships could foster deep connections through diversity and multiple points of connection. Civic crowdfunding addresses these points, using the online space for varied groups and projects, but also for the coordination of offline interaction. Civic crowdfunding further aligns with evolving concepts of citizenship, "participatory civics" (Zuckerman, 2013a), and a participatory democracy model that encourages citizen involvement to sustain a strong democracy (Barber, 2003). Other fields relevant to civic crowdfunding also embrace collaborative models, such as urban planning. The concept of participatory planning, characterized by shared public learning as well as shared public action, involves various community stakeholders for strategy as well as management of planning processes (Forester, 1999: 1). Participatory e-planning is a developing iteration of this concept, acknowledging the value of the online space for creation and collaboration over digital media content and the use of online tools (Saad-Sulonen, 2012). Online potential is reinforced through related ideas such as the "technology-mediated interaction" (Sanford and Rose, 2007: 408), driving e-participation, and digital democracy, a concept highlighting civic crowdfunding's possible impact through recognizing that information and communication technology can influence the realization of modern democracy (Fuchs, 2006). These illustrations, demonstrating an existing familiarity with online elements, as well as an interest in their continued use, suggest the potential for online civic crowdfunding platforms to be well received.

Work exploring the positive effects of volunteering on the volunteer (Wilson and Musick, 1999) strengthens non-financial arguments for civic crowdfunding; research suggests that increased volunteering can lead to positive democratic attitudes (Halman, 2003: 180). Both volunteering and charitable giving research identify social trends (Cowley et al., 2011) and create models of giving behavior (Sargeant, 1999), which help better understand citizen motivation within civic crowdfunding.

Economic crises can prompt new financial behavior, such as the public sector seeking out private investors (Murdock, 2011) or adopting "attitudes that are typical of the profit sector" (Michelucci and Rota, 2014: 1). Civic crowdfunding can incorporate both public and private funding sources, and fits within a discussion of "sector-bending" whereby elements from both public and private sectors are borrowed (Dees and Anderson, 2003). Research on the advantages and challenges of public–private partnerships is highly relevant to a deeper understanding of civic crowdfunding as it addresses combining public, government, and for-profit entities (Brinkerhoff and Brinkerhoff, 2011).

As a web-based process, civic crowdfunding is shaped by online philanthropy and the use of the Internet by non-profit organizations (Waters, 2007). Social media in particular,

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a differentiator between civic crowdfunding and traditional models of philanthropy, is an important tool for relationship building and funding (Kanter and Fine, 2010). The observed social dynamics of civic crowdfunding are consistent with the role of online social networks and their power to connect (Wellman and Gulia, 1999), to facilitate collaboration through "virtual communities of practice" (Dubé et al., 2005), and even to prompt action such as Internet protests (Gurak and Logie, 2003). Virtual and online communities (Rheingold, 1993; Preece, 2001, respectively) will be discussed further in subsequent sections.

Beyond the areas of research discussed above, the evolution of modern online civic crowdfunding can be credited to four principal factors.

First, the increased pervasiveness of the Internet and social media, and the accessibility of, and confidence in, online payment methods (e.g. Amazon Payments, PayPal, WePay) has broadened options for fundraising.

Second, civic crowdfunding responds to ongoing funding cuts and tightening of government budgets (Hollow, 2013: 70). Crowdfunding is a viable alternative to funding from banking and venture capital, both areas experiencing economic constriction (Gerber et al., 2012). Civic crowdfunding is also compelling as it can incorporate varied financial contributions (e.g. municipal governments, organizations, local citizens).

Third, there has been a shift in individuals' needs, wants, and expectations of government. Zuckerman (2013a, 2013b) has written about the evolution of civic engagement toward qualities such as impact and accountability. We propose that development of civic crowdfunding platforms may parallel this trend, and will discuss it later in the article.

Finally, increased acknowledgement of crowdfunding's non-financial benefits to stakeholders contributes to civic crowdfunding's development. For backers funding their own local projects, crowdfunding provides "emotional and ethical returns" (Hollow, 2013: 71). For project creators, non-financial benefits of civic crowdfunding include identifying volunteers, soliciting skills from the crowd (e.g., publicity), or receiving "in-kind" gifts (e.g. Spacehive's *Global Garden, Global Kitchen* received £700 in donated compost and wooden pallets).

Civic crowdfunding platforms increasingly recognize non-financial elements as *opportunities* and highlight them as *features*. Non-financial themes such as online networking and offline participation demonstrate civic crowdfunding's relevancy to both individual and institutional stakeholders, as it lies at the intersection of funding, technology, and civic participation. However, continued research is required as civic crowdfunding is a recent development, and outcomes such as impact and sustainability require long-term consideration.

Research methods

Our research is based on three reinforcing approaches: (1) review of academic literature and popular media, (2) non-participant observation of crowdfunding platforms, projects, and social media channels, and (3) semi-structured interviews providing specific detail through engagement with three stakeholders from Spacehive's *Stevenson Square.*

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Adapted from Webster and Watson (2002: xvi), the literature review employed the strategy of "going backward" to identify foundational sources, and then "going forward" to consider research citing key sources and leaders in the field. From the resulting list of journal articles and conference proceedings, the most relevant were annotated to outline concepts central to civic crowdfunding and to enable identification of themes across sources. The literature review also facilitated development of a list of keywords relevant to our research (e.g. community and crowdfunding, Spacehive). Use of these keywords helped pinpoint the number of fields involved in civic crowdfunding research (e.g. economics, urban planning, new media) and hone in on dominant themes, debates, platforms, and projects.

To track emerging content on civic crowdfunding, keywords were used to set up Google Scholar and Google alerts. Keywords were also applied to the online search functions of news sources such as *The Guardian* and *Wired*. In the absence of much academic research on civic crowdfunding, news sources provided names of contacts, projects, and platforms of interest, in addition to in-the-moment articulations not subject to an academic publication schedule.

Blog posts and relevant social media discussions were identified in several ways. Comments sections of online articles occasionally linked to blog posts or social media presences. We applied our keywords to Twitter, and tweets were isolated through both general ("citizinvestor") and project-specific ("AppADay") searches. On LinkedIn, searches by keyword identified names of people working in the field, as well as specific online discussion groups (e.g. Civic Crowdfunding and Civic Engagement Group). The Facebook pages affiliated with each of the four platforms were studied for project details, platform news, and community-driven discussion. These approaches provided a sense for the discussions occurring around the topic and, in the case of specific projects, identified contributors and partnerships.

All of these sources were investigated through non-participant observation, characterized by no involvement in activities and no personal interactions (Spradley, 1980: 50). This allowed for the recording of details without meaningfully affecting what we were observing.

Furthermore, non-participant observation helped identify specific platforms. We began with a broad list of examples and, ultimately, chose to focus on Citizinvestor, ioby, Neighbor.ly and Spacehive. These platforms were selected as they were among the first platforms established specifically for civic crowdfunding; with several years of project accumulation, they provide a broad spectrum of examples. The selected platforms have similarities (e.g. search option features, general layout) as well as differences, including social media embedding (Spacehive), video components (Citizinvestor, Neighbor.ly), and imported maps for offline positioning of projects (ioby). Using UK and UK platforms ensured English language content.

Wanting to follow the full range of civic crowdfunding activity from launch through to post-project, we focused on completed projects. Aiming, where possible, for diversity, we considered urban, suburban, and rural examples; projects with varied funding needs; and projects with diverse outputs (Table 2). Platform filters helped with selection, sorting projects by location, status, and category. Furthermore, we prioritized projects with social media presence and some news coverage, rejecting projects with minimal

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surrounding information such as *Rockledge Dog Park* (Neighbor.ly) and *Clean Up Central Falls* (Citizinvestor). This choice was made in order to place projects within the perspective of publicly posted information. Facebook profiles belonging to specific civic crowdfunding projects were helpful in identifying offline fundraising through mention of events or volunteer opportunities (see Figure 1 for the example of *Stevenson Square*).

We reviewed details from 120 projects across four platforms during our research period (September–December 2013). From this evaluative process, we identified the following projects for a deeper analysis: *Spirit of the American Navy* (Citizinvestor), *Asheville Tool Library* (ioby), *The Digital Reconciliation Project* (Neighbor.ly), and *Stevenson Square* (Spacehive). These projects were either live or recently funded during our research period (Appendix 1).

To strengthen understanding, we undertook an in-depth consideration of stakeholders involved in civic crowdfunding projects, conducting semi-structured interviews with two project creators of *Stevenson Square* and a community manager from the platform hosting it (Spacehive). This project was chosen because it

- Had completed funding and recently begun project execution, enabling us to understand project follow-through;
- Was a project of significant size, involving a number of stakeholders;
- Included corporate and Council support, in addition to individual online and offline backers;
- Featured media coverage, as well as extensive social media conversation; and
- Provided us with accessible research participants.

Having one project focus helped clarify partnerships, understand decision-making, and outline strengths and weaknesses of civic crowdfunding. More broadly, the specificity of these interviews paired with the other research methods helped develop the characteristics, challenges, and opportunities of civic crowdfunding.

This work is part of a larger research project on crowdfunding, and the number of semi-structured interviews on civic crowdfunding reported here is limited. However, we have taken care not to generalize without corroboration from multiple sources. We have matched in-depth work from *Stevenson Square* with a broader examination of multiple projects and platforms: 120 projects reviewed and 4 projects closely studied. We have addressed representativeness by diversifying our selection of examples as much as possible (Table 2). Furthermore, a review of academic literature and public media sources has provided a sense for the field beyond our own empirical work.

The remainder of the article summarizes our findings, comparing and contrasting our observations, literature review, and interviews through triangulation in order to provide detail and a "balanced picture" (Altrichter et al., 1993: 115). We cite specific examples of note within the text.

Current landscape

Academic research on civic crowdfunding remains limited, although the topic is of growing interest, with media mentions, research publications (Baeck and Collins, 2013),

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Table 2. Civic crowdfunding projects, per selection criteria.

Project (platform)	Category of project	Money asked/ money raised	# of backers	Backer type	Location	Output
Asheville Tool Library (ioby)	Resources/ education	7.556/7556 (US$)	54	Individual donors and accepting volunteers	Mix	Lending tools and teaching about their use to citizens and community organizations
Spirit of the American Navy (Citizinvestor)	Art/culture	77,000/77,000 (US$)	54	City of Naperville, Century Walk (US$25,000 each); Remainder funded by local citizens	Suburban	Installing a restored sculpture in honour of The American Navy
The Digital Reconciliation Project (Neighbor.ly)	Technology/ education	20,000/23,050 (US$)	67	Community Capital Fund (matching gift support), and 66 other "citizen neighbours"	Urban	Setting up a network of "trained neighbours teaching" to increase digital skills and access
Stevenson Square Green Makeover (Spacehive)	Green space	39,211/39,170 (£)[a]	77	Manchester City Council, Experian, 67 citizen backers and ten "in-kind" contributions	Urban	Urban greening

[a]Despite these numbers, more than the ask was raised due to other donations.

and government references (London Councils, 2013). We have illustrated the present-day landscape of civic crowdfunding through three aspects strongly represented across sources: (1) the number and diversity of civic crowdfunding projects, (2) the development of new civic-focused platforms, and (3) the increased use of alternate funding sources.

Although civic crowdfunding's potential is underdeveloped, there is an upward trend in the number of projects on both general crowdfunding and civic crowdfunding platforms. For example, the crowdfunding site Indiegogo has hosted several projects under its "community" tab conforming to a definition of civic crowdfunding (Leonard, 2013). Kickstarter has also hosted civic projects, such as the *LowLine*, a project aiming to turn an abandoned trolley terminal in New York into a public park. In the case of civic crowdfunding platforms, UK-based Spacehive has funded £1 million of civic projects since going live in 2012. US-based ioby has successfully funded 282 civic crowdfunding projects and raised US$732,011 since its beta launch in 2009.[2]

We have also noted growing global interest in crowdfunding and the development of civic platforms. Finland's Joukkoenkeli coordinates co-creation between individuals, public officials, private companies, and NGOs, whereas the recently launched platform Crowdera helps support and complement both non-profit organizations and individuals with civic projects around the globe.

To gauge interest in crowdfunding, we examined annually published reports on alternative funding, which incorporate the sub-type of civic crowdfunding. A Nesta report

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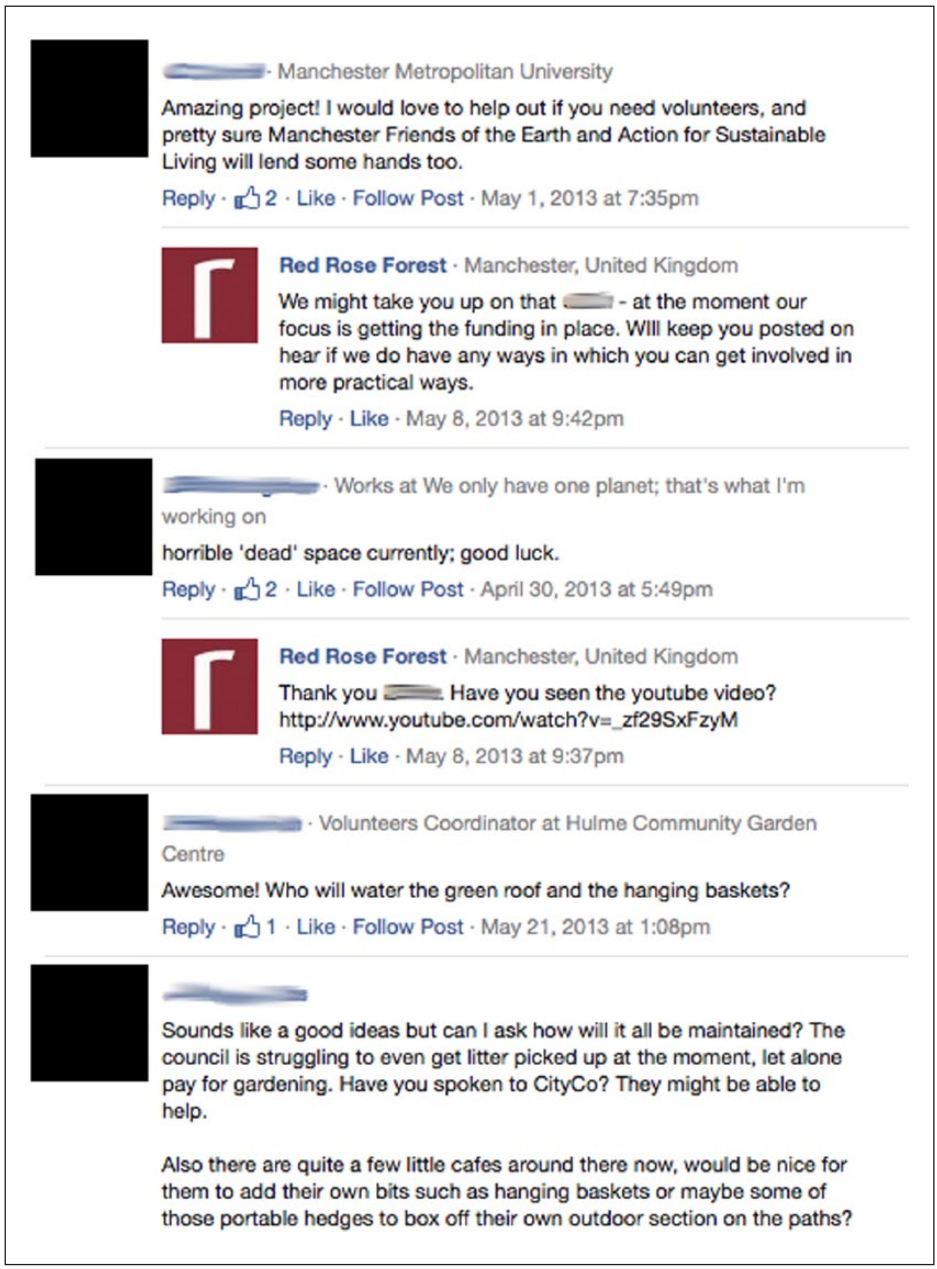

Figure 1. *Stevenson Square* project discussions on the project creator's Facebook page (Red Rose Forest).
Source: https://www.facebook.com/RedRoseForest (accessed 7 August 2014).

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Table 3. Illustrations of civic crowdfunding characteristics per platform.

Platform	Project details	Stakeholder roles and involvement	Social media and conversation	Online and offline
Citizinvestor.Com	No rewards listed "Phased" funding to increase project success Tax deductible donations	Accepts only projects funded by councils	Enables Facebook "likes" of a project Enables Tweets No integration of social media feeds into platform	For example, *Spirit of the American Navy* began with offline interest, mobilized online, executed the project offline
ioby.org	No rewards listed Success defined by whether enough money was raised for creator to take action on a project No fee for projects raising less than US$1000	Volunteers are an important part of the project process, and platform features facilitate volunteer coordination	Enables Facebook "likes" of a project Enables Tweets Allows for shares on Google+	For example, *Asheville Tool Library* funded online, but moved offline for volunteer help and community workshops
Neighbor.ly	Rewards for backers, but tend to be in the form of acknowledgment rather than a physical or costly reward	Accepts projects from local government and civic minded entities	Enables Facebook "likes" of a project Enables Tweets	For example, *The Digital Reconciliation Project* engaged with online and offline through both funding and project execution
Spacehive.com	No formal rewards listed, though projects can independently promote rewards 'In-kind' donations 3.7% of project total as fee	Partnerships with civic bodies and corporate sponsors Supplements financial donations with volunteers and "in-kind" donations	Can share projects to individual Facebook Timelines Integrated Facebook discussion onto project page Enables Tweets, allows for 1-click follows and embedded Twitter feed on the platform Proposed integration of LinkedIn to merge personal and professional networks	For example, *Stevenson Square* rallied funds and publicity online, though project outcome and coordination of continued maintenance is offline

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documents that between 2012 and 2013, the UK alternative finance market, of which crowdfunding is a part, grew from £492 million to £939 million; donation-based crowdfunding and charitable fundraising represented the largest segment with £310 million (Collins et al., 2013). The Knight Foundation reports a trend of upward growth in community action innovation, which includes civic crowdfunding (Patel et al., 2013). Globally, US$2.7 billion was raised through crowdfunding in 2012 and, although final numbers have yet to be reported, US$5.1 billion was projected for 2013 (Massolution, 2013). Although financial earnings are only one way of measuring success, these numbers indicate crowdfunding's continued strength and global reach.

Characteristics of civic crowdfunding

Reward-based crowdfunding provides backers with a gift, or "reward", for their contribution, ranging from new products to various experiences to backer-specific content. Our research includes consideration of two reward-based crowdfunding platforms, Indiegogo and Kickstarter. These platforms are ideal for study as they maintain archived projects online, are active across social media, and report platform statistics. Although *reward-based* crowdfunding refers to the type of return for backers, and *civic* crowdfunding refers to the type of project being funded, we have learned much about the defining characteristics of civic crowdfunding by looking not only to civic crowdfunding platforms but also to other sub-types of crowdfunding. We have specifically observed these platforms because of the following reasons:

1. Both Indiegogo and Kickstarter have hosted civic projects.
2. Indiegogo and Kickstarter, as well as the four civic crowdfunding platforms considered, all feature contributions from backers with no expectation of financial return. This differs from other types of crowdfunding offering equity or investment opportunities (Mollick, 2014: 3).
3. Indiegogo and Kickstarter predate the four civic crowdfunding platforms studied, and the latter mirror features and layout of the former (e.g. integration of social media, display of similar funding, and backer details).
4. As reward-based platforms established in 2008 and 2009, respectively, Indiegogo and Kickstarter are important reference models of successful crowdfunding platforms. Reward-based crowdfunding is currently the most prevalent form of crowdfunding (Mollick, 2014: 3). Understanding similarities and differences between examples of reward-based crowdfunding and civic crowdfunding could be strategically valuable to development of the latter.

Through research we also identified platform differentiators, which address the specific needs of civic projects. These differences relate to (1) project details, (2) stakeholder roles and involvement, (3) social media and conversation, and (4) the importance of online and offline community. As each crowdfunding platform has its own subtleties and variations, these differences are not firmly fixed but, rather, representative of our research observation.

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Project details

Indiegogo and Kickstarter host many projects featuring outputs for individual enjoyment in the form of a physical product, ranging from *Oculus Rift* gaming headsets to *Beardo* comic books (Appendix 1). These platforms also accommodate projects targeting specific audiences, such as the *Form 1 3D* printer or the *Veronica Mars Movie Project* (Appendix 1). If we adhere to the definition of civic crowdfunding as funding projects that "provide services to communities" (Davies, 2014: 28), then the type of projects suitable to civic crowdfunding would appear limited. However, projects launched through civic crowdfunding are diverse, with outputs including community gathering places, transportation options, and assorted public services.

Civic crowdfunding projects represent a less transactional, consumerist interaction than many projects observed on Kickstarter and Indiegogo in which backers look to secure pre-orders of products or contribute solely to secure rewards. As civic crowdfunding outputs are for public, and often repeated, use (e.g. green space, education programs, technology access), there is less potential for a sole point of exchange (money for reward) and more encouragement toward longer term involvement in the project.

Of the four civic crowdfunding platforms considered, only Neighbor.ly lists rewards (Table 3). However, these rewards differ from those common to Indiegogo and Kickstarter, as they value involvement and prioritize backers' interest in influencing outcomes (Zuckerman, 2013a). Rather than tangible rewards of financial value, Neighbor.ly provides reward through acknowledgment, such as a public thank you included in an association newsletter (e.g. *Spring Valley Sidewalks Restoration*).

Civic crowdfunding platforms include strategies for maximizing success of projects, and diversified opportunities for backers to contribute. For instance,

- Citizinvestor has the option of gradual "phased" funding, giving each project a better chance of financial success;
- Ioby defines success as whenever creators can carry out their project, even if the amount raised is below the original ask; and
- Spacehive's "in-kind" donations add thousands of dollars to project totals.

Project creators also have financial incentives to use civic crowdfunding platforms, as fees for completed campaigns can be lower. Compared to Indiegogo (4% of project total) and Kickstarter (5%), ioby charges no fee for projects raising less than US$1000, Spacehive cites 3.7%, and donations through Citizinvestor are incentivized by being tax deductible.

Stakeholder roles and involvement

Creators of civic crowdfunding projects are often municipalities and organizations, and funding frequently follows a tripod model with financial support from across three parties (Table 2, Column 5): (1) government body, (2) for-profit or not-for-profit business or organization, and (3) individual backers.

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The model of civic crowdfunding can be framed in several ways, and three visions of civic crowdfunding have been proposed: individual, community, and civic crowdfunding as an "additive innovation" (Davies, 2014: 101–103) serving to supplement a decline in government spending and services. Although no one vision is more "correct" than the others (Davies, 2014: 103), these different framings of civic crowdfunding suggest the potential for tension between various stakeholders' interests in management, participation, and control. As illustration of the varied contributions, *Stevenson Square* was 34.67% funded through Manchester City Council, 7.65% of funding was donated by corporate sponsor, Experian, and a further 23.32% was donated by individuals and organizations in the form of both cash and in-kind donations.

Civic crowdfunding suits local backers and a geographically proximate community, that is, those who can make use of, and benefit from, the crowdfunded project. This echoes research suggesting that crowdfunding is not driven exclusively by charity but, rather, a degree of self-interest (Sebag-Montefiore, 2013). In the case of civic crowdfunding, where reward is access to the completed local project, self-interest is not just individual but also collective, a self-and-*others*-interest. In contrast, on global platforms Indiegogo and Kickstarter, individual rewards are distributed to backers regardless of geography, often divorced from a larger funding community.

Geography also impacts stakeholder contributions, with "in-kind" contributions (Spacehive) and coordination of volunteers (ioby) benefitting from proximity. On Indiegogo and Kickstarter, there are commonly two clearly delineated categories of participants (creator, backer) and no platform features coordinating non-financial contributions. Finally, none of the civic crowdfunding platforms are global (i.e. creators and backers are all from within the country of platform origin) which lends itself to a more local support base than Kickstarter or Indiegogo with projects and funders around the world.

Social media and conversation

Social media has been identified as a key component of crowdfunding due to its ability to foster involvement and collaboration (Moisseyev, 2013). Engagement via social media is considered a success factor; in a large-scale analysis of 48,500 Kickstarter projects, the number of Facebook contacts was positively correlated to funding (Mollick, 2014). However, our review of project pages and social media channels (Facebook, Twitter) suggests social media use is less active, or more hidden, for civic crowdfunding projects. This may be a result of project creators not having social media presence, but could also be the result of crowdfunding platform design obscuring social media information.[3] Although the four platforms studied allow for projects to be shared to Facebook and Twitter, they do little to engage with, publicize, or integrate the conversation from social media with on-platform activity.

Social media on Citizinvestor, ioby, Neighbor.ly, and Spacehive is used predominantly for uni-directional conversation such as publicity (i.e. "liking" on Facebook, sharing on Twitter) rather than for multi-directional conversation featuring elements such as networking and feedback (Table 3). There is also limited support for project-specific conversations, either between creator and backer or between backers. Based on our observation of platforms and projects, we propose the following explanations:

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1. The financial "ask" is already tied up in local partnerships (Table 2, Column 5), creating lessened need to use social media for wider-reaching networks.
2. Interactions between stakeholders occur offline through events such as town hall meetings, minimizing need for online supplement.
3. Civic crowdfunders are less accustomed to online engagement.

These observations suggest that conversation *surrounding* civic crowdfunding projects might take different forms or locations, explaining different patterns of social media activity. Furthermore, civic crowdfunding projects may have different success factors than those suggested by existing reward-based crowdfunding research (Mollick, 2014).

The importance of online and offline community

Because community propels project activity, both online *and* offline community are central to civic crowdfunding. Transitions between online and offline community are a distinguishing feature of civic crowdfunding, with citizens rallying around projects online as well as mobilizing for participation offline (e.g. *Asheville Tool Library* coordinating offline volunteers).

The idea of community on the Internet is not a new one. Rheingold coined the term "virtual community" in 1993 and from then, the Internet was lauded as a place for "social beings who need affiliation as much as they need information" (Sproull and Faraj, 1997: 36). Core to Rheingold's (1993) definition are connections forged through time and interaction: "webs of personal relationship" (5). This captures the longer term engagement fostered through civic crowdfunding.

Since Rheingold, research into online communities (a term we use interchangeably with "virtual communities") has been published across disciplines (Iriberri and Leroy, 2009). Preece (2000) acknowledges that online community is sustained by sociability supported through technology. We employ Preece's approach to online community because it incorporates two interrelated concepts into an understanding of success factors: (1) sociability, how the community interacts, and (2) usability, how easy it is for the community to learn and to use a product (Preece, 2001).

An offline community of backers local to the project often complements online community in civic crowdfunding. Existing research proposes that offline activity can have an important role in sustaining communities online (Lin, 2007); civic crowdfunding suggests the reverse can also be true.

Civic crowdfunding research: challenges and opportunities

Many of the challenges of civic crowdfunding, including language, early criticisms, access to data, and scope, result from it being an emergent field. However, civic crowdfunding represents an area of great opportunity, enabling a consideration of financial and non-financial strengths of crowdfunding, the impact of crowdfunding on a broad cross-section of a population, and the nature of the relationship between crowdfunding and community.

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Definitions of civic crowdfunding are evolving. Civic crowdfunding is often illustrated through large-scale projects such as bridges or buildings; however, many projects make use of civic crowdfunding on a smaller scale, including skills workshops (*Chicken Apprenticeship*) and festive celebrations (*Light-up Stalybridge*). With a focus on local community, the adoption of entirely new descriptive terms such as "community-focused crowdfunding", or "hyper-local crowdfunding" may be appropriate.

Although there is a generalized assumption in the media that civic crowdfunding is "good," there are also concerns about its adoption (Zuckerman, 2012). These include the risk that civic crowdfunding forms a "social wedge" disproportionately favoring projects in wealthy, wired neighborhoods (Zuckerman, 2012). Additionally, civic crowdfunding projects on the scale of parks and structures need ongoing funding. As such, civic crowdfunding, as currently structured, may not be appropriate for the support of projects requiring, among other things, the coordination of planning committees and ongoing maintenance (Zuckerman, 2012).

As civic crowdfunding draws inspiration from many areas, access to data may be challenging. Civic crowdfunding platforms offer limited access to data relating to specific backers. This makes groups of backers difficult to identify, and obscures full understanding of the civic crowdfunding community and its demographics. Furthermore, social media conversations are minimal, making partnerships and "in-kind" contributions hard to trace.

Most generally, civic crowdfunding is well positioned to contribute to research that is continuing to unpack the financial as well as the non-financial benefits of crowdfunding, with illustrations such as cross-organization cooperation and recruitment of offline volunteers (Figure 1). Further non-financial benefits to the population at large include providing visibility and voice (Zuckerman, 2012).

Civic crowdfunding invites a consideration of community through highlighting "community capital" (Zuckerman, 2012). This refers to the value of connection between people and their environments, and can be developed through activities such as volunteering time or providing input (Zuckerman, 2012). In civic crowdfunding, contributors to local projects may have vested interests in forging neighborhood bonds, and community capital may be developed through activities such as collaborating with stakeholders in addition to seeing projects through to financial success (e.g. *Stevenson Square*).

Setting an agenda for future research

We propose an agenda prioritizing the development of civic crowdfunding, its promotion, adoption, and the realization of successful projects including (1) platform features, (2) optimizing effectiveness and impact, (3) community, and (4) applying existing crowdfunding research.

Platform features

How could civic crowdfunding platform features address existing concerns about civic crowdfunding, such as limited visibility and access to a broad population of backers?

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Future work should investigate how civic crowdfunding platforms can help facilitate online and offline promotion, networking, and feedback. Diverse options for on-platform personal profiles, integrated feeds, and social media channels should be considered. Research should also consider alternatives for communication between stakeholders, through public and private messaging features. As civic crowdfunding projects target a general population for funding, platforms should be conscious of usability features such as clear layout, and step-by-step guides to key actions such as online donations. A consideration of features best suited to civic crowdfunding platforms would encourage participation from a broad population of backers, positively influencing both financial and non-financial outcomes.

Optimizing effectiveness and impact

> What steps can be taken to promote use, and to optimize effect and impact, of civic crowdfunding both online and offline?

Optimization of effectiveness and impact requires different mechanisms for different phases of crowdfunding, for instance, (1) the funding period during which the project is "live" online, and (2) post-project funding, when the project is being implemented.

For the first phase, support features such as recommended content, advice about partnerships, and social media strategy are all underrepresented across civic crowdfunding platform research. Support should aim to improve communication with stakeholders and to forge an active community. However, characteristics of support on civic crowdfunding platforms might be impacted by lack of time, resources, or skillset of civic organizations (Davies, 2014). Features such as guides, videos, chat support, and other features should be tailored to the needs of stakeholders. Research must identify the most beneficial support features to civic crowdfunding, and how to customize them per project.

For the second phase, research into impact and effectiveness beyond the civic crowdfunding period requires a multi-faceted approach. At its most basic, civic crowdfunding's success is contingent upon realization of projects; even if fully funded, incomplete or inaccessible projects have limited impact. Research into barriers that prevent civic crowdfunding projects being fully realized is required. This research could include challenges in the delivery of "in-kind" donations, difficulties with the execution of logistics such as construction permits, or conflicting priorities between stakeholders. There is a need to consider how platforms and creators could identify, anticipate, and address these barriers. For example, platforms could be modified and promoted as centralized sites for discussion, feedback, and stakeholder coordination post-funding.

Beyond individual projects, research should examine how the impact and effect of civic crowdfunding can be optimized. Our interviews with stakeholders suggest that a successfully executed project draws new stakeholders and new projects toward civic crowdfunding. As a result, methods for platforms to maximize communications and outreach should be tested, ranging from on-platform tactics (e.g. blogs, profiling projects by theme) to off-platform outreach (e.g. online news media, offline community meetings).

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Community

What is the nature of community in civic crowdfunding?

What is the impact and effect (financial, non-financial) of civic crowdfunding on community?

We have established that community is central to civic crowdfunding. As we have suggested, civic crowdfunding can address not only financial need but also citizens' heightened interest in community and civic engagement. However, there remain unanswered questions about the intersection of community and civic crowdfunding, such as the following:

- What is the balance of motivation between collective factors, such as forging bonds with others, and individual factors, such as creating a sense of personal impact?
- Are there elements specific to civic crowdfunding that can be capitalized on to sustain community, such as geographically proximate backers?
- How can civic crowdfunding strike a sustainable balance between financial elements (e.g. collecting sufficient funds for project execution) and non-financial elements (e.g. encouraging development of community networks) of projects?

Research should continue into the benefits of civic crowdfunding beyond funding, such as the ability to create support networks and to communicate directly with elected government officials. These non-financial factors not only appeal to creators but also help engage backers. Although coordination between stakeholders during the crowdfunding period itself has been discussed, research should consider how relationships can be solidified and sustained beyond funding, for example, platforms helping local governments to coordinate information sessions, or community organizations to publicize volunteer opportunities. A consideration of these factors would help instill a sense of accountability in all stakeholders, influence follow-through, and, ultimately, provide long-term impact through community engagement.

The short-term benefits and the long-term impacts of civic crowdfunding on various communities require evaluation through an extended research period. As civic crowdfunding grows, the identification of appropriate metrics of success also needs to be prioritized.

Applying existing crowdfunding research

What existing crowdfunding research could help generate new insights about civic crowdfunding?

There is also an opportunity to apply existing crowdfunding research to civic crowdfunding. Gerber et al. (2012) discuss motivations of crowdfunders, and De Jesus (2013) examines the impact of backer geography on crowdfunding platform popularity. Hui et al. (2012) investigate the oft-unanticipated demands of crowdfunding work, research

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emphasizing the value of supports and guides for civic crowdfunding. Crowdfunding research should be carefully reviewed to suggest any useful application to civic crowdfunding, and to identify gaps in research.

The areas of research proposed above would improve the clarity and usability of platforms, set guidelines for project execution and impact, encourage action that addresses both financial and non-financial strengths of civic crowdfunding, and foster local community. As an emerging field, continued research into civic crowdfunding will demystify and promote the process, cementing civic crowdfunding as a viable funding alternative for creators, and an appealing way to contribute for backers.

Conclusion

Civic crowdfunding is a specific type of crowdfunding offering a novel way for citizens to engage with, and institute positive change within, their communities.

Through this article, we have considered the current landscape of civic crowdfunding at an early stage of its implementation within communities. We have identified characteristics of civic crowdfunding, and discussed its challenges and opportunities. We have also proposed a research agenda aimed at maximizing civic crowdfunding's potential through addressing weaknesses and targeting further development.

While recognizing possible criticisms, we have shown that civic crowdfunding represents not only an opportunity to secure funds and to complete projects, but also a way to forge partnerships across government bodies, businesses, and citizens, and to foster the development of local communities. The current diversity of projects suggests that civic crowdfunding has the potential to develop in myriad ways to accommodate varied needs. We have also advocated for a careful consideration of the role of the online space (platform, social media) alongside offline components. Future iterations of civic crowdfunding might work effectively in tandem with offline efforts, complementing online tools and offline funding approaches.

Our work proposes concrete suggestions for future research, addressing some of the challenges, and capitalizing on the opportunities, of this sub-type of crowdfunding. Through acknowledging varied theoretical influences, highlighting examples, and comparing civic crowdfunding platforms to two reward-based crowdfunding platforms hosting civic projects (Indiegogo, Kickstarter), we have also contributed to an understanding of civic crowdfunding. This understanding will impact future research of the field as well as bring applied value through helping civic crowdfunding platforms refine features, encouraging creators to post, and incentivizing backers to contribute to the civic crowdfunding process.

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Notes

1. Defined as "funding from the 'crowd'" by Michael Sullivan on fundavlog. The site no longer exists, though credit to Sullivan is given by others (see www.wordspy.com/words/crowdfunding.asp).
2. Information about ioby's project successes and total revenue collected current as of 14 May 2014 (see http://ioby.org/about/people).
3. We acknowledge that all four civic crowdfunding platforms have their own Facebook pages and Twitter accounts. Here, however, we are discussing the lack of individual projects being promoted through designated social media channels.

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Author biographies

Alexandra Stiver is a PhD student within the Computing and Communications Department at The Open University, with an MSc in Social Anthropology from the London School of Economics and Political Science. Her research is in social computing, focusing on crowdfunding and its online and offline community dynamics.

Leonor Barroca is Senior Lecturer in the Computing and Communications Department at The Open University. Her research is in software engineering and in the design of, and use of technology for, distance education in software engineering.

Shailey Minocha is Professor of Learning Technologies and Social Computing in the Computing and Communications Department at The Open University, UK. Her research interests are in the design and evaluation of user experience in emerging online domains.

Mike Richards is Senior Lecturer in the Computing and Communications Department at The Open University. His research interests include social aspects of internet technologies and the application of ubiquitous computing to earth sciences.

Dave Roberts is a Senior Visiting Research Fellow at The Open University. His research interests centre on methods for the design of interactive systems. Dave is recently retired from a long career at IBM where he led the development of the OVID design method.

Appendix 1. Crowdfunding projects referenced, in order of appearance in text.

Name, Description (Platform)	Link
Carnes School Outdoor classroom for environmental education (ioby)	https://ioby.org/project/carnes-school-learning-garden
The Line Sculpture walk in east London (Spacehive)	http://spacehive.com/theline
App A Day Access to iPads for digital literacy class (Citizinvestor)	http://www.citizinvestor.com/project/app-a-day—children-engaged
Stevenson Square "Green makeover" of a city square (Spacehive)	http://spacehive.com/stevensonsquaregreenmakeover
Spirit of the American Navy Sculpture restoration and installation (Citizinvestor)	http://www.citizinvestor.com/project/spirit-of-the-american-navy
Global Garden Global Kitchen Community garden and kitchen (Spacehive)	http://spacehive.com/selbytrustglobalgarden
Rockledge Dog Park Off-leash dog park (Neighbor.ly)	https://neighbor.ly/projects/rockledgedogpark
Clean Up Central Falls Trash/recycling bins for public park (Citizinvestor)	http://www.citizinvestor.com/project/clean-up-cf-new-bins-in-jenks-park

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Appendix 1. (Continued)

Name, Description (Platform)	Link
Asheville Tool Library Public tool "library" and instruction (ioby)	https://ioby.org/project/asheville-tool-library
The Digital Reconciliation Project Better online access and digital skills training (Neighbor.ly)	https://neighbor.ly/projects/troost-village-digital-reconciliation
Lowline Urban green renewal (Kickstarter)	http://www.kickstarter.com/projects/855802805/lowline-an-underground-park-on-nycs-lower-east-sid
Oculus Rift Virtual reality headset for gamers (Kickstarter)	https://www.kickstarter.com/projects/1523379957/oculus-rift-step-into-the-game
Beardo Print and electronic collections of a comic (Indiegogo)	https://www.indiegogo.com/projects/get-the-award-winning-comic-beardo-volume-1-4-released-now
Form 1 3D Printer 3D printer (Kickstarter)	http://www.kickstarter.com/projects/formlabs/form-1-an-affordable-professional-3d-printer
The Veronica Mars Movie Project Movie based on a cancelled TV show (Kickstarter)	http://www.kickstarter.com/projects/559914737/the-veronica-mars-movie-project
Spring Valley Sidewalks Restoration Public sidewalk restoration (Neighbor.ly)	http://neighbor.ly/projects/spring-valley-sidewalks
Chicken Apprenticeship: Workshop Urban chicken education (ioby)	https://ioby.org/project/chicken-apprenticeship-workshops
Light Up Stalybridge: Holiday Lights Holiday lights for Stalybridge Town Centre (Spacehive)	https://spacehive.com/light-upstalybridgethischristmas

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