

Crowd Equity Investors: AN UNDERUTILIZED ASSET FOR OPEN INNOVATION IN STARTUPS

California Management Review
1–28© The Regents of the
University of California 2017

Reprints and permissions:

sagepub.com/journalsPermissions.nav

DOI: 10.1177/0008125617738260

journals.sagepub.com/home/cm**Francesca Di Pietro¹, Andrea Prencipe¹, and Ann Majchrzak²**

SUMMARY

Collaborating with investor networks generated in the course of equity-based crowdfunding campaigns can contribute to the success of startup firms. Through a qualitative study of 60 European startups, this article identifies the type of inputs provided by equity investors, how these inputs are related to startups' and founders' characteristics, and startups' later performance. Startups exploiting crowd network are more likely to be successful two years later compared with startups that do not exploit the crowd, or acquire from the crowd product, strategy, or market knowledge. The findings extend existing research on the relationships between open innovation and startups by identifying the inputs provided by the crowd and how the use of crowd equity investors in open innovation platforms is related to later success.

KEYWORDS: open innovation, startups, crowdfunding, performance, professional investors, knowledge, networks

During the early development of a new venture, the openness of the startup to using an external source of knowledge¹ to compensate for the scarcity of internal resources and competences is a crucial factor for success.² In fact, scarce resources compel startups to adopt a collaborative approach with partners, stakeholders, and shareholders throughout the various stages of development and commercialization of ideas.³ Although startups operate under conditions of extreme uncertainty and have low rates of survival,⁴ they generate development and economic growth, and are assumed to be more innovative than established firms.⁵

¹LUISS University, Rome, Italy

²University of Southern California, Los Angeles, CA, USA

Open innovation (OI) refers to leveraging external knowledge flows to accelerate internal innovation and commercialization opportunities across corporate boundaries.⁶ Despite the potential of external knowledge, accessing such knowledge can be difficult. Large organizations have recognized the benefits of opening their innovation activities to the external world,⁷ but little is known about OI in the context of startups.⁸ Much of the literature linking OI to startups considers the importance for the firm's future success of investors that provide knowledge.⁹ This assumes that this knowledge emerges primarily from intensive private relationships with very experienced professional investors. Yet the value of crowd investors as a source of other inputs has received little attention in the literature on OI.¹⁰

We are interested, specifically, in the type of inputs that the crowd offers to startups. By determining the types of inputs that the crowd offers and how startups' and founders' characteristics affect the use of these inputs, we address the following research questions:

Research Question 1: How do startups use equity-funding OI platforms?

Research Question 2: Does this use affect later success?

To address these research questions, we conducted a qualitative study that relied on the integration of three data sources: primary data collected from interviews with entrepreneurs who fundraised via equity crowdfunding platforms; platform blog and press interviews; and secondary data gathered from CrunchBase, a database of the startup ecosystem consisting of investors, incubators, and startups. Using these data, we sought to learn about crowd investors' involvement in startups, entrepreneurs' crowdfunding campaigns and experience with platforms and crowds, and startups' status and subsequent fundraising achievements.

Our evidence suggests that equity-funding OI platforms provide firm founders with two main types of inputs: product, strategy, and market knowledge; and network ties with industry players and other relevant stakeholders. Startups exploiting crowd network ties are more likely to be successful two years later (in terms of survival rates and fundraising achievements) than startups that do not gain knowledge from the crowd.

We also found that the type of input the crowd provides is related to startups' and founders' characteristics, suggesting that the nature of OI is not the same for all startups. Specifically, entrepreneurs' managerial and industry experience, and the presence of professional investors in the firm's ownership structure, lead them to exploit crowd network ties. In addition, our data show that first-time entrepreneurs are more interested in forging meaningful connections to relevant stakeholders in the industry, whereas firms in an embryonic and consumer-oriented stage are more open to knowledge exploitation activities. Therefore, startups experience additional nonfinancial benefits by turning to the crowd to obtain equity funding. These

benefits include a faster product development process, definition of a business growth strategy and help with expansion into new markets, market knowledge, access to networks, and increased public awareness of the firm.

In sum, we found that startups can develop competitive advantage if they manage and nurture the crowd of investors as an extension of their assets.¹¹

Background

Startups are key drivers of economic development and industry evolution.¹² They generate positive employment growth even during periods of recession, and they accounted for almost 20% of gross job creation in the United States since the mid-1980s.¹³ These newly created firms search for attractive market segments to grow their product and scale up their firms.¹⁴ In the embryonic stage of the firm's life cycle, entrepreneurs move from the idea stage to securing funding, thereby laying down the basic structure of the business. This is a temporary state, usually lasting three to five years, when extreme uncertainty is rampant, and failure rates are high.¹⁵ Therefore, crucial for new venture success is openness to external sources to access the required resources.¹⁶ Lack of the necessary physical, human, and financial assets to bring a new technology or product to the market¹⁷ makes OI practices increasingly important for entrepreneurs. OI practices involve leveraging external knowledge to accelerate internal innovation and commercialization opportunities.¹⁸ Although entrepreneurs are likely to benefit significantly from external sources of innovation, this topic has received little attention in the OI literature.¹⁹

In the early stage of firm development, financial partners such as incubators/accelerators, business angels (BAs), venture capitalists (VCs), and corporate venture capitalists (CVCs) are among the most important owners in startups²⁰ and steer and support their portfolio companies in a number of ways.²¹

VCs are active in providing network ties with industry players and other important stakeholders,²² helping new ventures to raise additional funding, and recruiting executive members for the management team.²³ In addition, VCs are active in providing their portfolio companies with strategic advice, reviewing and helping to formulate their business strategy through board membership,²⁴ and monitoring financial and operational performance. They also contribute to the growth of their ventures by providing personal support and by serving as a sounding board for team and CEO decision making.²⁵ Finally, the VC's image attracts the attention of people outside the VCs network, signals unobserved qualities about the company to the market, and increases the company's reputation toward stakeholders.²⁶ From a synthesis of previous work, we can identify three role-types representing the most valuable contributions made by VCs to startup companies beyond the initial provision of capital: network ties to arrange additional financing, establish partnerships with industry players, and recruit key executives; strategy-making advice and serving as a sounding board for the team; and increasing the firm's external reputation.

BAs, although operating differently from the more structured and professional VCs, provide expertise, feedback, and ongoing managerial and general business advice—from financial matters to corporate strategy, strategic planning, and marketing—to the businesses in which they invest.²⁷ BAs also provide contacts and networking possibilities in the form of financial relationships and working relationships with related firms and industry players, and help with hiring and recruiting.²⁸ BAs frequently seek representation on the firm's board, and act as advisors,²⁹ and sounding boards for the entrepreneurial team's ideas. Overall, BAs are active in providing: network ties to arrange additional financing, establish partnerships with industry players, and recruit key executives; business-related advice and serving as a sounding board for the entrepreneur; and increased company external reputation.

CVCs are well known for providing expertise and nonpecuniary resources to the ventures in which they invest,³⁰ including infrastructure for product development, manufacturing, marketing and distribution resources, and customer service activities.³¹ Corporate investors also make use of their networks or partnerships to connect startups with industry players, and provide strategic advice often by securing board positions or observer rights.³² Based on previous work, the contributions of CVCs fall into four areas of provision of complementary assets, strategic advice, industry relationships, and endorsement (the startup's credibility is enhanced by affiliation with a large corporation).

Last, incubators and accelerators are active in providing services to facilitate a startup's innovation.³³ They contribute to extending the startup's technology, market, and financial knowledge, which increases the likelihood of the firm raising capital.³⁴ Incubators and accelerators provide network ties with entrepreneurs, investors, and professionals, which allows the startup to share information, obtain feedback, create new potential synergies, and raise additional funding. They provide mentoring through workshops dedicated to different (technical and industry-related) aspects of the business, and to managerial and entrepreneurial practices.³⁵

Figure 1 illustrates the nonfinancial resources that traditional early-stage investors provide to startups.

Existing research assumes that these resources, knowledge, and services primarily come from the intense private relationship and interactions between the startup and its few highly experienced professional investors.³⁶ These investors typically have substantial personal startup experience, resources that allow access to detailed knowledge of market needs and the competitive landscape, and large networks of experts from which they can draw. The assumption is that often much of this knowledge is secret, tacit, shared only by selected firms with selected startups, and requires intensive conversations between contractually bound and trusted parties. However, this knowledge could usefully be provided *publicly* (rather than privately on an OI platform), could be made accessible to hundreds of equity funders drawn from a public crowd, and could be provided efficiently and explicitly without the need for intensive face-to-face interaction.

FIGURE I. Early-stage investors' inputs provided to new ventures.

	Network Ties	Knowledge	Reputation/ Legitimacy	Physical Resources
VCs	Financing Partnerships Key executives recruitment	Strategy making Board members Sounding board for the team	Financial investors endorsement	
BAs	Financing Partnerships Key executives recruitment	Board members Advisory role Sounding board for the team	Financial investors endorsement	
CVCs	Partnerships	Board members Advisory role	Industry players endorsement	Complementary assets: infrastructure, manufacturing, distribution, etc
Incubators/ Accelerators	Financing Partnerships	Technology, market, and financial knowledge		

Note: VCs = venture capitalists; BAs = business angels; CVCs = corporate venture capitalists.

This possibility was not considered prior to the advent of crowd equity-funding platforms.

By looking at the types of inputs that the crowd provides and how startups' and founders' characteristics affect the use of these inputs, we aim to address the following research questions: *How do startups use equity-funding OI platforms? And does this use affect later success?*

We take a qualitative research approach to determining the inputs shared between equity investors and entrepreneurs, and whether the types of inputs provided by the former is influenced by startups' and founders' characteristics and related to the startup's subsequent performance. Equity crowdfunding differs from other crowdfunding models³⁷ such as reward-based crowdfunding, where backers expect to receive a "reward"—a nonfinancial tangible benefit—for their investment and have no financial claims on the firm.³⁸ Equity crowdfunding is a profit-generating system of online investments in which individuals are motivated by financial returns.³⁹ The investors' expertise, competences,⁴⁰ and vested interest in the firm's long-term success make investors a valuable source of knowledge for startups. Interactions between entrepreneurs and investors relate to different areas of the business beyond refinements to product development.

Research Design

We conducted a qualitative study of 60 European startups within a single OI context, the *equity-funding platform*.

Empirical Setting

We selected six European equity crowdfunding platforms: Crowdcube and Seedrs in the United Kingdom, Symbid in the Netherlands, FoundedByMe in Sweden, Wiseed in France, and Seedmatch in Germany. We focus on the European equity crowdfunding market because of the homogeneity of its regulatory framework.⁴¹ The United States later democratized access to startup investment opportunities via equity crowdfunding⁴²; thus, differences in the regulatory frameworks in Europe and the United States do not allow a comparative study approach. The crowdfunding phenomenon emerged first in 2011⁴³ in the United Kingdom, and the equity crowdfunding market expanded rapidly from 2012.⁴⁴ The United Kingdom is known for a strong propensity toward risky investments, as shown by VC investment trends,⁴⁵ and is considered a European hub for startups.⁴⁶ In addition, the United Kingdom is described as having “the most advanced online platforms and sophisticated alternative finance instruments,” and a “dedicated regulatory regime and a supportive government” for startups and small and medium-sized enterprises (SMEs) in Europe.⁴⁷ Therefore, both the availability of startups and support for crowd financing suggested that a study of equity crowdfunding of startups should include the United Kingdom. Other equity-funding OI platforms appeared in other EU countries, and we selected four of the most active platforms (measured by number of startups funded)⁴⁸ in the three-year period 2012 to 2014. Our empirical setting allows us to control for context-specific elements that might influence the capacity of the firm to engage in OI.

A crowd equity-funding platform is a two-sided platform operated by a neutral third party. Any entrepreneurs can join and share a business plan. Sharing is open. Startups follow a straightforward fundraising process as part of the platform: after receiving a positive due diligence rating by the platform that assesses the validity of the firm information provided in the application form, the equity raising campaign goes live, and the crowd starts pledging equity for the firm. The platforms selected adopt an all-or-nothing scenario: startups receive funding only if the campaign achieves 100% of the pre-determined target. Startups can accept further investment, above the previously agreed target amount; that is, they can accept overfunding, and decide on a minimum individual investment amount, thus influencing the distribution of investments. The average crowdfunding campaign lasts 60 days. During the fundraising period, conversations between startups and potential investors occur via the Q&A section of the campaign’s web page. Investors can ask the firm for financial details and other information deemed relevant to better evaluate the quality of the firm and its long-term investment potential, and to make an investment decision. Any individual is free to join the platform and become an accredited equity funder.⁴⁹ Individuals with a minimum net worth of £250,000, or an annual income of £100,000, or who are sufficiently knowledgeable about the risks associated with the proposed investment (as assessed by a Financial Conduct Authority authorized firm) meet the requirements.

On average, 100,000 investors were registered on Seedrs and Crowdcube between 2012 and 2014, while Symbid, Wiseed, and Foundedbyme registered an

average of between 10,000 and 25,000 investors. In 2015, the numbers on the U.K.-based platforms doubled, and also grew considerably on the other platforms.⁵⁰ At the end of the fundraising period, when the campaign closes and the target fund is reached, investors become firm shareholders, while entrepreneurs continue to use the platform to communicate with their investors cum shareholders. The structured platform allows equity funders to provide finance and advice through the investor relations' project area or via email. We examined the communication and knowledge exchanges between investors and shareholders after the fundraising campaigns ended.

Sampling of Startups

Data collection focused on startups in business for a minimum of two years after their founding date that had successfully closed a funding campaign during the three-year period 2012-2014. Across the six platforms, 250 startups met these criteria.⁵¹ We selected 60 out of 250 startups using the snowball sampling method.⁵² The average number of equity funders per startup (158) held a total of £223,000 investments on average. Startups reported a 30% success rate two years after their founding date. These characteristics are similar to the total population during the 2012-2014 period.⁵³ Table 1 describes the sample.

Data Collection

Data collection spanned March 2014 to mid-2015. We considered startups that looked for crowdfunding during the three-year period 2012 to 2014. We chose a qualitative research approach to explore the type of inputs the crowd provided to entrepreneurs. We relied on the integration of three data sources⁵⁴: open-ended, in-depth interviews with startup founders to learn about crowd investors' involvement in startups (see interview protocol in the Appendix); platform blog and press interviews to learn about entrepreneurs' crowdfunding campaigns and experience with the platform and the crowd; and secondary data gathered from CrunchBase to learn about startups' status and subsequent fundraising achievements. Table 2 shows the numbers of people involved, the data collected from each data source, and data usage.

Data Analysis

Our data analysis process involved three independent phases (Figure 2). In the first phase, we identified the types of inputs shared by the crowd. We started by reviewing the literature on early-stage investors' inputs provided to new ventures, with a confirmatory/disconfirmatory purpose. We then focused on novel insights emerging from the data to suggest new relationships between crowd investors and entrepreneurs, to extend the existing literature. Analysis of the 60 interviews with firm founders and 11 follow-up interviews led to codification and categorization of all emerging aspects related to the use of the crowd and the dynamics of the involvement process. The lead author analyzed the interview transcripts to open code the data by breaking them into relevant concepts and grouping them into categories⁵⁵ representing the contributions of the

TABLE I. Sample Characteristics.

Industry	Food & beverage	22%
	Software	13%
	E-commerce	7%
	Financial services	7%
	Social media	7%
	Other industries: manufacturing, HR, biotech, education, entertainment, music, fashion, gaming, and so on	44%
Geographical distribution	The United Kingdom	73%
	France	9%
	The Netherlands	5%
	Sweden	5%
	Germany	3%
	Finland	3%
Customer orientation	B2C	67%
	B2B	26%
	B2B and B2C	7%
Firm age at the time of crowdfund	<3 years	75%
	4-6 years	22%
	>6 years	3%
Crowdfunding campaign	Average amount raised	£223,000
	Average number of investors	158
	Minimum number of investors	7
	Maximum number of investors	640
	Average equity shares	16.2%
Founders' characteristics	Average industry experience	6.1 years
	Average managerial experience	7.5 years
	Entrepreneurial experience	53% first-time entrepreneurs 20% founded one firm 27% founded more than one firm
Firm performance (December 2016)	Failure rate	22%
	Fundraising achievements	30% raised a second crowdfunding round, on average, one year after the first round, 15% raised a second funding round through professional investors

crowd to various firm activities. The second and third authors adopted an “outsider perspective” to maintain distance from informants’ views, thus retaining a higher-level perspective necessary for informed theorizing.⁵⁶ The third author acted as the “theoretical interpreter” to provide focus and closure in relation to the key emerging constructs and their links to extant theory; the second author engaged in debriefing sessions with the lead author during and at the end of each phase of data collection and analysis to maintain focus and clarity.

We looked first for evidence describing the crowd involvement, and identified categories of inputs shared by the crowd such as *product, strategy, market*

TABLE 2. Data Sources.

Source		Objective
Primary data: Interviews	16 in-person, 24 via Skype 20 written Average duration: 35 minutes 150 pages of transcript	To learn about (1) reasons for choosing crowd equity funding as opposed to traditional means of financing; (2) investors' involvement in firms' activities, knowledge transferred; (3) organization of OI: processes and tools to manage the relationship with the crowd
	Follow-up interviews 6 entrepreneurs 2 via Skype 3 written	To assess changes in OI activities: (1) whether investors were still involved in firm activities and type of activities; (2) changes in the organization of OI
Secondary data	Crowdfunding campaign webpage Platforms case studies, blog, and press interviews Firm social profile: website, Facebook, and Twitter	To gather general information of each startup—sector, founding date, product, target amount, firm shares (%) etc.—shareholders' structure, fundraising achievements, and status of activity
	CrunchBase	To gather information on fundraising rounds and deal type (crowdfunding round or professional investors), and company status

Note: OI = open innovation.

knowledge, crowd contribution in providing *access to networks*, and fostering company's *public awareness*. Table 3 presents the categories and examples of the types of inputs in each category.

Next, we combined the five categories into two general categories: *knowledge* and *network exploitation*. Figure 3 depicts our framework for the outcomes of OI in startups.

Table 4 provides an overview of the empirics in relations to main thematic categories.

In the second phase of analysis, we examined whether the type of crowd-provided input was related to startups' or founders' characteristics.⁵⁷ The third phase of analysis was aimed at identifying whether the use of these inputs was related to later startup performance.

Findings

Our findings reveal how crowd equity investors can contribute to the performance of startup firms by providing knowledge and network. The findings indicate how the type of crowd-inputs is related to startups' and founders'

FIGURE 2. Phases of the data analysis process.

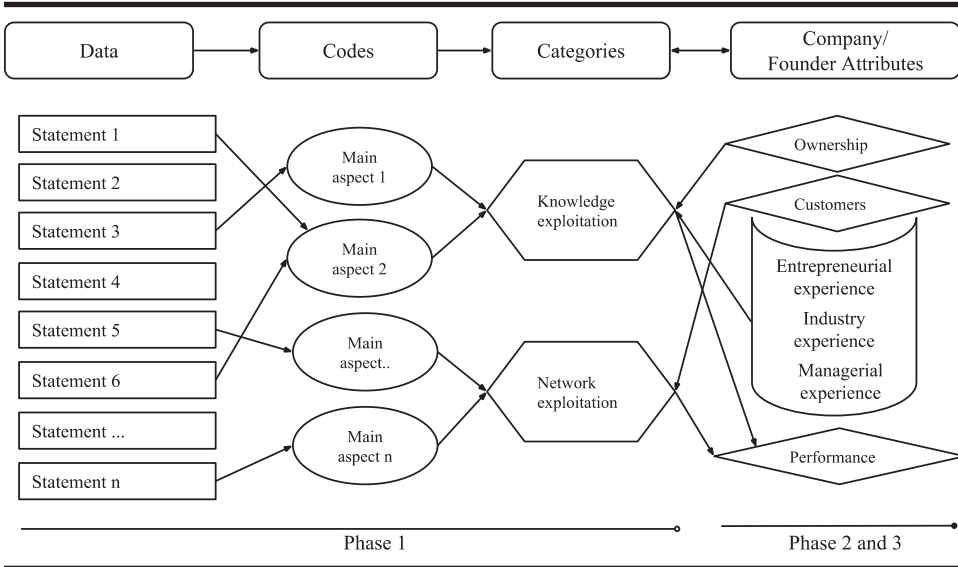


TABLE 3. Crowd Investors' Inputs Categories.

Categories	Definition	Examples
Product co-creation	Activities aimed at developing and finalizing product	New product features to consider; feedback on the early-version of the product; product testers; pieces of software to implement; suggestion about the back-end system, virtual logistics, payment system, and so on.
Strategy knowledge	Activities aimed at providing business development support and long-term firm strategic decisions	Suggestions about how the firm could grow, scale, and develop; assisting with the expansion into foreign markets; providing the foreign country information-framework needed; position on firm board, and so on.
Market knowledge	Activities aimed at providing advice about the market in which the company operates; offering services and advice on different business areas	Market trends insights; information about potential competitors and partners; marketing intelligence; legal advice; accounting advice; help with books, and so on.
Access to network	Activities aimed at providing connections with external stakeholders and relevant industry players	Connections with key industry players; contacts with investors to obtain additional financing; distribution contacts; recruiting through introductions, and so on.
Public awareness	Activities aimed at promoting the brand and enhancing firm external visibility	Leverage crowd's contacts to help promote the business; business ambassadors; spreading the word through social media; acting as marketing channels, and so on.

FIGURE 3. Data structure.

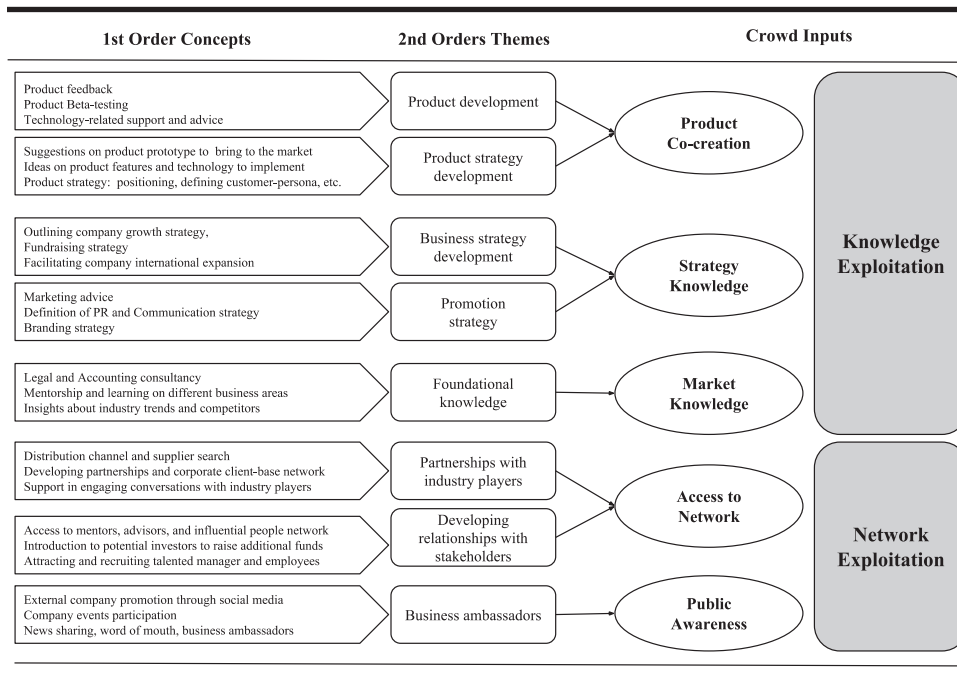


TABLE 4. Overview of Empirics in Relation to Main Thematic Categories.

Emerging Themes	Representative Quotes
Product development	“The one thing you can trust crowdfunding people to do is to give a lot of feedback. People will definitely pipe-up, they will send you messages and give feedback.” “We will launch the product in a couple of weeks; some of them are involved as testers. We have been live by testing the app now and few people who invested are booking and attending classes.” “We have reached out to people to ask for help to develop part of the product that was very specific, and it has been very helpful to talk to them, to get some information, and to find out how they are able to help.” “In terms of software development, we had information also from crowdfunders, what I have mentioned early about technology input. And equally about web design.”
Product strategy development	“We have investors who are particularly interested in technology so they would give us feedback on the product, using test feedback, come up with suggestions and ideas on how we can improve our technology.” “We have a very complex back-end system, our virtual logistics, it involves many different currencies, actors, recipients, etc. If we didn’t pay attention to that we would have to either spend enormous money to fix it or shout down the firm. We have very good investors specialized in finance, they pointed us to the right direction from the very beginning.” “We also were looking for ideas to identify a model maker and we had a couple of responses from crowdfunders.” “I get emails saying: I really liked the improvement here and how about this feature.” “Through their LinkedIn profile we can connect to our product and therefore understand which travel insights this guy has that we don’t know.”

(continued)

TABLE 4. (continued)

Emerging Themes	Representative Quotes
Business strategy development	<p>“There are investors who are involved or interested in the business development, a sort of our growth strategy, they would make suggestions about how the firm can grow, scale, and develop.”“We also have an investor who is very knowledgeable and well connected in the City, so he helped us financing the business, to structure the strategy, and the board.”“The bigger crowdfunding investor; who is in the board, has twenty restaurants in South America and he is interested in taking the franchising in Brazil. He pushes to go in the future in that direction.”“One of the investors would be assisting with the expansion into the European market. Our initial expansion plan is the U.K. and Irish market, we would look at the European market maybe year two or three, but this investor is allowing for the expansion in the European market nearly instantly, and he has very large contact-base of distributors and supply chain, so he will speed up the all process.”</p>
Promotion strategy	<p>“We had quite a few people giving us marketing intelligence.”“We have people who are helping us with aspects of marketing.”“One of the main things in which my crowdfunding investors have really been involved is Public Relations (PR). So one of the crowdfunding guy is a PR consultant, so he helped us with that.”“One or two help us with marketing and strategy.”</p>
Foundational knowledge	<p>“Many of them give us feedback on what is going on in the market, so we get all the information that we haven’t heard already, they feed information about potential partners or potential competitors.”“There is a lawyer and he said: I can read through your contracts, reduce your legal bills, because he would help us preparing all the relevant materials, for free.”“One of them is an accountant, and he is helping us with our books.”“We wanted their knowledge and their expertise in a specific area. For instance, one of our advisors is a sales expert and it is good for us to have advice in that side of the business.”</p>
Partnerships with industry players	<p>“People would say I work in a big bank in the City and there is a lot of catering there, you can supply your product there, and they will make a connection. So there is a connection to customers, that they facilitate.” “Investors have an involvement, they help to get distribution contracts, they open doors wherever they can, but over and above that there is not a major involvement besides regular introduction to potential purchase partners.”“There are others who are interested in partnership with us. Mike, for example, provides complementary services, they are interested in partner in that way.”“We are receiving emails from them. For example, one of the small shops wants to buy wine or restaurants, or someone who wants to do events and all this kind of things, they connect us with them.”</p>
Developing relationships with stakeholders	<p>“The bigger investor was an introduction from an earlier (investment) round.”“One investor is more network because and he is in the medical space J&J. I reach out to him to fit into his program. He helps me to connect with a big market player to enter into their program and partner with them.”“We communicate them what we are recruiting for, to see whether they are interested or whether they know anybody who is interested. We have two applications for investors, and we hired a staff member through an introduction.”</p>
Business ambassadors	<p>“The other benefit is the buzz the crowd creates, you share it, your friends share it, all the stakeholders are sharing, so before you get started people already know about the product, people have heard about it, people want to get involved.”“For example, we are now in the middle of lunching something called The Escape School, so it is good to leverage closed contacts, and our investors are all interested in our success, so it makes sense for us to lean on them and get them to help promote what we are doing.”“They act as market mavens for you, which means they promote the product outside.”</p>

characteristics. Also, we link the use of an equity OI funding platform to later startup success. Before exploring the relations mentioned above, we provide descriptive data on the sample firms that sought support from the crowdfunding platforms (see Table 1 for details). On average, entrepreneurs who sought support had accumulated both industry and managerial experience of 6.1 and 7.5 years, respectively. Of these, 53% were first-time entrepreneurs who sought financial support through the platforms within two years after their inception, and a minority (18%) were backed by professional investors.

Crowd Knowledge and Network Exploitation

Knowledge exploitation refers to those activities aimed at gaining product, strategy, and market knowledge. Network exploitation refers to activities aimed at developing relationships with industry players and other relevant stakeholders, and increasing company's public awareness (Figure 3).

Finding 1. Knowledge exploitation. Investors contribute to the performance of startup firms by providing product, strategy, and market knowledge, including suggestions for improving and fine-tuning the product, defining the product development strategy, outlining the firm's growth strategy to facilitate expansion into new markets, defining the firm's promotion strategy, and acting as mentors and advisors to the business to dispense firm-building foundational knowledge.

In the context of product-related activities, the involvement of the crowd is beneficial to finalize the product prototype and gather feedback and suggestions on the technology implemented. Technology-oriented investors are more inclined to offer criticism and suggestions related to the product's features and functioning. Essentially, investors provide inputs to the product's underlying assets: the software used, the "back-end system," the "virtual logistics," and the "payment system." Investors are also involved as testers after development and finalization of the beta version of the product, before it is released onto the market. Specifically, some investors "sign up to the platform to test it" and report "encountered errors"; others go through the process of service acquisition involving "searching for the service" to "booking classes" to "attending classes" to report on the process and provide suggestions to tailor the services and products offered based on customer experience. This outside-in knowledge accelerates product development and finalization, and allows firm founders to factor in user experience, user insights, user-technology-related advice, and customer needs. The heterogeneous crowd of investors—including "professional investors, people who invest in technology firm specifically, others who have an interest in the industry, and also a large group of nonprofessional investors just interested in the firm"—allowed entrepreneurs to account for the different perspectives of people from different industries with different levels of expertise. Having a wide pool of investors willing to support the product development process provides strong market validation of the business. As one founder explained, "It is possible to have a lot quantitative and qualitative feedback, and this influences the way you develop the product and which part of your prototype you bring to the market."

The involvement of the crowd exceeds practical and operational feedback. Investors' perspectives were considered important for defining the firm's growth strategy. A subsample of the crowd involved in business development emerged from the interviews. These participants held official positions on firm boards or advisory boards, for example, as chairs or firm operations directors. Other investors who did not hold an official position contributed to fine-tuning the firm's growth strategy. Despite the embryonic stage of development of our sample firms, crowd investors played a relevant role in planning and "opening the door" to international expansion of the business. Some entrepreneurs reported how "investors allowed for the expansion into the European market nearly instantly," and although not a priority, it was an opportunity they could not ignore. Investors provided entrepreneurs with "good market knowledge and contact-base of distributors and supply chain" and possessed the "information framework needed to expand in the foreign country." All of this is crucial for speeding up international expansion and leveraging the firm's growth. Investors supported business expansion also through their direct involvement offering franchising opportunities. Overall, from a strategic point of view, the crowd represents an important pool of ideas for exploring original and profitable growth paths: "We regularly keep them up to speed with how the business is going, and I enjoy my ad hoc coffee/lunch meetings with the shareholders discussing the future of the business and sharing ideas."

As these milestones were achieved, issues related to growth and scaling up became more prevalent. Founders received guidance on a variety of topics relevant to the early phase of development. We classified this guidance as the foundational knowledge building process (Figure 3), including initial traction, talking to customers, and providing legal and accounting advice. Interviewees reported that investors were actively involved in different areas of the business. For example, investors provided support as "sales experts," "accountants," or "legal and tax consultants." To quote an interviewee,

"They [investors] support us in many different ways, whether it is legal, financial, there are people who say, hey, I design websites, can I update your website for you? There is a lot of key business fundamental, so there is legal and financial but there are also other side aspects like another [investor] saying I work for a fire firm and I can look at your fire risk assessment, for example."

Last, the crowd also acted as a provider of knowledge on industry trends and market insights, and drew the entrepreneur's attention to "high-level industry report[s]" and insights about potential partners or competitors. One of our respondents in the Fin-tech industry reported that, "It's good to have a wide network of people interested in your business, that when they pick up something that may be relevant they'll feed it through." The shared knowledge was relevant to market commitment decisions, that is, information about available market alternatives and their operations, and knowledge about how to use and collaborate with potential alternatives.

Finding 2. Network exploitation. Exploiting the investors' network contributes to startup growth by providing connections to establish partnerships with industry players, arrange additional financing and recruit managers and employees, and increase companies' public awareness by acting as marketing channels and business ambassadors.

First, investors act as a bridge between entrepreneurs and key industry players, for example, distribution channels, large corporations, and potential investors. "They [investors] go through extraordinary lenses to get you into the stores in their local neighbors, and to give you introductions to people that might help you to export or distribute the product." Entrepreneurs exploit the position and status held by some investors within their firm to grow the corporate side of the business by promoting their product or service and establishing partnerships: "One of our investors is in the medical space Johnson & Johnson, I reach out to him to fit into his program. One investor from British Telecom introduced me to the relevant person in there." In addition, the crowd was involved in the operational side of business development by supporting collaborations with key suppliers to gain access to complementary services and assets with "favorable conditions." Investors referred founders to influential and knowledgeable individuals in their network. While engaging in conversations with industry players, entrepreneurs reported the decisive influence of investors in helping to bring the conversation to the next level of engagement. They considered the crowd to be a "massive resource to tap into to build connection with people for mentoring in our program, and introductions to relevant people."

Beyond providing connection to potential investors to access to additional types of financing, crowd investors support entrepreneurs' recruitment of talented employees, and referred individuals within their networks. Hiring is a difficult process and is a relevant aspect of business creation and development. In new ventures, the team and its dynamics are the engine of the business.⁵⁸ Investors also foster firm awareness and visibility by accelerating brand recognition and popularity. Investors are "ambassadors of the business promoting the product and the business through social media and friends." Even before the product commercialization state, startups have the possibility to build a customer base and increase the number of potential customers exponentially. Overall, the crowd offers the entrepreneurs "another set of eyes, and a fresh perspective on the business."

Startups' and Founders' Characteristics Influence on OI

Although the nature of our study does not allow us to imply causal relation, our descriptive approach provides insights into whether the type of crowd-inputs (Knowledge, Network, or No involvement) are related to startups' and founders' characteristics.⁵⁹ Among founders' characteristics, we consider: level of entrepreneurial experience—first time versus serial entrepreneur; industry experience—years of work experience within the particular industry; and managerial experience—years of working experience in a managerial capacity. Among startups' characteristics, we consider the presence of professional

TABLE 5. Relationship of Startups' and Founders' Characteristics to Crowd-Inputs.

	Knowledge Exploitation	Network Exploitation	No Involvement
Industry experience	5.4 years	5.7 years	8 years
Managerial experience	6.8 years	6.2 years	10 years
First-time entrepreneurs	48%	60%	53%
Age of the firm at time of fundraising	24 months	34 months	36 months
B2C startups	84%	60%	47%
B2B startups	16%	40%	53%
Venture-backed startups	8%	30%	40%
Performance			
Failure rate	36%	0%	27%
Fundraising achievement	52%	52%	27%

investors as firm shareholders and customer orientation—B2B or B2C. Table 5 reports our findings.

First, we found no relevant differences in the type of crowd-inputs—knowledge versus network—between entrepreneurs with relevant managerial and industry experience⁶⁰ and those who were less experienced. On the other hand, our data show that entrepreneurs with industry and managerial expertise seem less prone to exploiting the crowd as an external source of knowledge.

Second, no strong differences emerged between first-time and serial entrepreneurs in relation to adopting an OI approach (see Table 5). However, we identified a negative trend between founders' startup experience and OI, which gets stronger as founders' experience increases. In addition, we noticed a slight tendency among first-time entrepreneurs to involve investors in network exploitation activities.

Third, Table 5 shows that B2C-oriented startups experience crowd involvement in various activities aimed at gaining both knowledge and networks, while B2B-oriented startups seem interested mostly in exploiting the crowd's network.

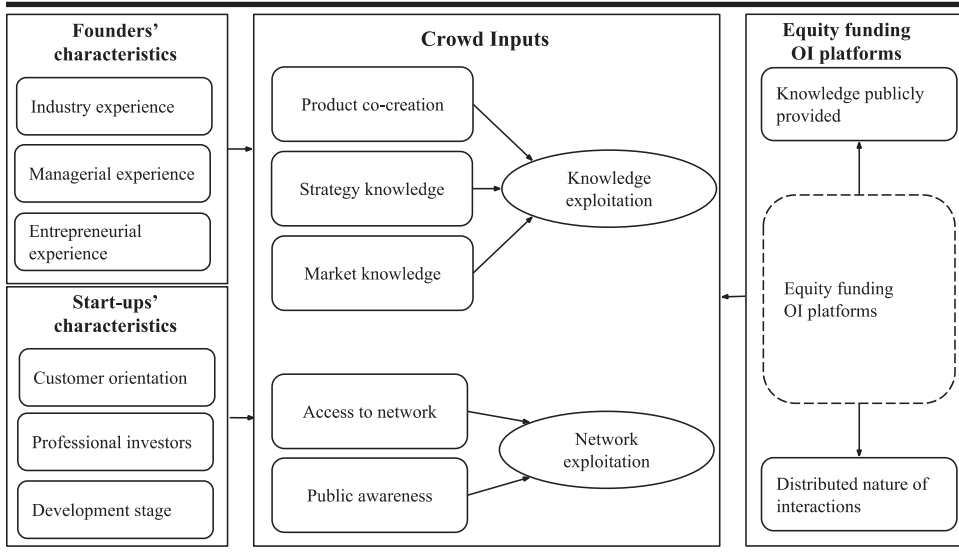
Fourth, we explored the relation between traditional early-stage investors and inputs provided by the crowd; 92% of startups that received product, strategy, or market knowledge from the crowd were not backed by professional investors. This suggests that professional investors discourage exploitation of the crowd, restricting its involvement in network exploitation activities aimed at developing ties with the industry players and relevant stakeholders and increasing the firm's public awareness. Thus, entrepreneurs might be less motivated to engage in OI with crowd investors since they consider it a "time-consuming activity with no guarantees about the outcomes."

Relationship of Knowledge versus Network Exploitation to Startup Success

We wanted a better understanding of the value of opening a startup to external sources. In December 2016, about two years after our data collection period, we gathered information on firm performance in terms of status (i.e., success or failure) and fundraising achievements (i.e., whether firms raised further funds after their crowdfunding round).

Although the nature of our study does not allow us to imply any causal relation, the data in Table 5 show that startups exploiting the crowd for network purposes only reported better performance in terms of failure rates (0%) and fundraising achievements (52% of them successfully closed a second round of fundraising) compared with startups that do not involve the crowd or seek crowd knowledge. Firms that did not engage in OI reported a 27% failure rate, and only 27% succeeded in raising further funds. Firms that involved the crowd in activities aimed at gaining different types of knowledge reported the highest rates of failure (36%) and a 52% success rate for raising subsequent funding. This suggests that accessing a greater variety of external sources at an early stage of company development does not lead to more benefits in the short term.

Entrepreneurs consider the crowd to be a valid source of knowledge to exploit but also see it as a time-consuming activity. At the embryonic stage of firm development, the entrepreneur is required to develop and manage the crowd relationship, investigate investors' profiles, and capture the potential added value for the business. If these activities are not supported by a dedicated firm division or team due to financial and human resources constraints,⁶¹ they divert the entrepreneur's (limited) time and attention away from the core business activities. In addition, developing a product with relevant inputs and engaging with potential customers early on helps to validate demand for the product and to achieve a good target product market fit. However, too much information can be distracting and result of loss of focus and negative feedback loops. An additional issue related to using the crowd to provide knowledge that emerged from the data is related to capabilities and competences. In following potential users' insights, and adding features for users who suggest they will become paying customers, the entrepreneur risks targeting the wrong audience or solving a problem to gain one customer. Entrepreneurs are pulled in many different directions by "lots of people who have different ideas that have to be managed," as one of our informants reported. This requires the ability to evaluate and recognize the value of advice worth pursuing given the potential lack of the required knowledge among the crowd. Distant search is likely to provide nonfamiliar knowledge that can be useful for innovation⁶² although potentially harmful for the efficiency of firms in the early phase of their development. Therefore, the fit between the knowledge that is available and the knowledge that is needed is not always a good one, and cognitive efforts may be required to identify valid opportunities. Overall, the evidence suggests that a prudent approach to exploiting external knowledge sources in the early phases of firm development might be more beneficial.

FIGURE 4. Equity-funding OI platform framework.

Note: OI = open innovation.

Discussion

The conceptual model in Figure 4 links the concepts and their relationships, and helps to illustrate our findings.

We identified the contribution of crowd equity investors to product, strategy, and market knowledge and to network ties with industry players and other relevant stakeholders. Crowd investors are actively involved in the day-to-day product development process through the provision of user experience, insights, and participation in defining the product development strategy. Crowd investors are also involved in the firm's strategy making based on their role as a board director or chairman, or through their suggestions and information related to the company's growth strategy, and expansion into foreign markets. In addition, crowd investors provided free services and advice in different business areas such as accountancy, legal, and sales, and also provide industry-specific insight and information on trends. The crowd facilitates links to industry players, potential investors, talented employees, and experienced and influential people useful for building the company's advisory network. Last, the crowd acts as business ambassadors to enhance the firm's external visibility, and as a marketing channel that helps the entrepreneur to build a community of potential users.

The intensity of crowd exploitation, knowledge versus network, was found to be related to founders' and startups' characteristics. Specifically, entrepreneurs' managerial and industry experience lead to forging and exploiting crowd networking ties as a result, perhaps, of their better entrepreneurial judgment and more specialized knowledge.⁶³ The data show also that first-time entrepreneurs are more interested in exploiting crowd network, and that B2C businesses are

more open to knowledge exploitation activities, whereas B2B businesses consider it more relevant to develop connections with the industry players and stakeholders (as required in B2B contexts).⁶⁴

The presence of professional investors discourages startups' OI activity because of the knowledge inputs and networks they provide, which are crucial for the development of early-stage firms.⁶⁵

The stage of development of the firm has an influence on the nature of the interactions with the crowd; firms at the embryonic stage of development are more interested in knowledge exploitation activities compared with firms in the growth stage, which are interested mainly in exploiting the crowd's network ties. Initially, as our findings suggest, startups are focused on finalizing the product and obtaining early validation that there is interest in the product, enabled by the exchange of money or attention, while experimenting with what the market and customers want and how much they are prepared to pay, which allows the firm to develop an efficient sales and marketing plan. Firms in this stage of development require recognition from the ecosystem and increased visibility. Equity-funding OI platforms enable entrepreneurs to exploit external sources for these purposes. Later, when the business perhaps is not yet profitable but the unknowns and risks are fewer, revealing a fairly clear path to profitability, entrepreneurs seek support from professional investors (e.g., VCs) in the search for links to key industry players and stakeholders to enable business expansion.

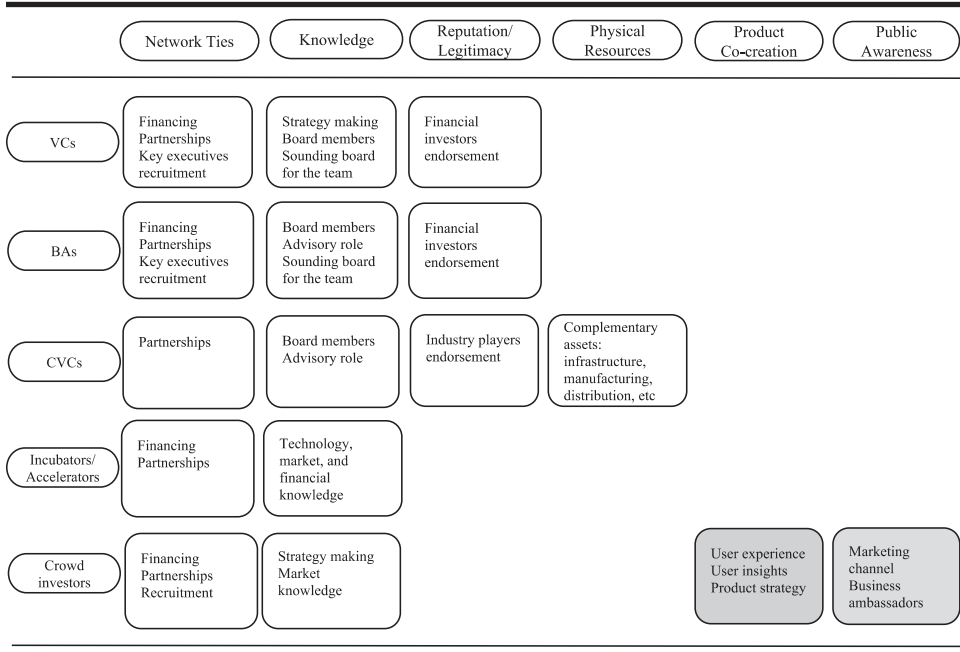
Last, equity-funding OI platforms allow the provision of knowledge publicly by hundreds of equity funders drawn from a public crowd. This knowledge can be provided efficiently and explicitly without the need for intensive interaction. Therefore, equity-funding OI platforms are a tool that enables public and distributed knowledge sharing between investors and startups.

While we did not empirically compare use of OI platforms with professional investors, there are some differences between our findings and the findings in the literature on professional early-stage investors (see Figure 5).

Crowd involvement in startups differed from early-stage investors' in regard to their active participation in the definition and co-creation of the product, in increasing company's public awareness acting as marketing channel, and in the distributed nature of the interactions that occur between investors and the entrepreneur.

Crowd investors were involved in the day-to-day development process of the product by providing entrepreneurs with users' experience, users' insights, and definition of the product strategy development. In addition, crowd investors were involved in providing market knowledge, such as sales advice, legal and accountancy services, insights about competitors' moves, and mentoring on different areas of the business. Although the extant literature has highlighted the role of VCs and other traditional investors in providing business-related advice,⁶⁶ differences stem from the type of advice provided and time committed. The crowd's involvement is more day-to-day and operational as opposed to the more strategic involvement of professional investors.

FIGURE 5. Early-stage investors' versus crowd's inputs provided to new ventures.



Note: VCs = venture capitalists; Bas = business angels; CVCs = corporate venture capitalists.

Also, we identified the unique role played by crowd investors acting as a marketing channel. The crowd supported the promotion of the business and the product by leveraging their personal networks through such things as social media, events, and news sharing, thus helping the startups to build a community of potential users and enhancing the company’s public awareness.

With regard to how interactions between crowd investors and entrepreneurs occurred, equity-funding OI platforms allow entrepreneurs to gather many diverse opinions from a public crowd, which are more representative than just a couple of opinions. At the embryonic stage, in which entrepreneurs are mainly focused on getting the product to the market, acquiring customers, and partnering with key players, the involvement of a diversified crowd of investors could bring additional benefits that complement professional investors’ support to the firm.

Last, through equity funding, OI knowledge is provided publicly through the platforms, events, or investors’ meetings rather than through private intense conversations. Entrepreneurs exploit knowledge efficiently and explicitly without the intense conversations to turn tacit knowledge into explicit knowledge.

Conclusion

This article has identified the types of inputs received by startups through use of an equity-funding OI platform. Crowd investors support startups throughout the product development process by becoming product co-creators and

engaging in the multiple stages of the innovation process (ideation, development, and launch). Investor engagement in problem-solving and business development allows entrepreneurs to gain knowledge about the technology and strategies needed to compete in the industry, and to identify the optimal type of strategy or business approach for their firm.⁶⁷ An open approach to an international and heterogeneous crowd of investors facilitates international exposure, expands geographical reach, and tests the business proposition on a new target audience. Connecting with people with differing perspectives and understanding yields important knowledge not available through previous industry, business, or managerial experience. Equity-funding investors deliver critical intangible value to the entrepreneurs through their influence over product development and the firm's strategic plan; this helps to reduce uncertainty and complements existing knowledge.⁶⁸

An open approach is also critical for entrepreneurs to forge links to relevant stakeholders, to expand networks, and to gain recognition from incumbents, which provide legitimacy.

More experienced entrepreneurs and those with solid industry and managerial expertise are less likely to engage in OI. Also, startups' and founders' characteristics influence the intensity of the entrepreneurial firm's exploitation of the crowd, making it easier for B2C businesses to benefit from the crowd's potential knowledge. The presence of professional investors discourages OI in startups, and the firm's stage of development influences the nature of its interactions with the crowd, allowing early-stage firms to benefit more from knowledge exploitation activities compared with later-stage firms that benefit mainly from crowd network exploitation. By linking OI to startups' later performance, we found that startups that exploit the crowd's network are more likely to be successful two years later compared with startups that do not exploit the crowd.

Crowd involvement in startups differs from its involvement in large corporations; startups involve the crowd in a wide range of activities—from product and business development to international expansion—whereas in large corporations its involvement focuses mainly on the innovation process,⁶⁹ and much less on strategy making and the development of external ties. The dynamics of OI also are different: large corporations often mount limited time “contests” or “competitions” but do not nurture relationship with participants.⁷⁰

The involvement of the crowd in startups differs from that of traditional professional investors in relation to its active participation in the definition and co-creation of the product, increasing the company's public awareness, acting as a marketing channel, and in the distributed nature of the interactions that occur between the investors and the entrepreneur.

Our evidence complements previous crowdfunding research by identifying the crowd as a source of product innovation and customer-related knowledge.⁷¹ It also highlights some differences with the literature on professional investors by suggesting different resource and knowledge needs over different stages of a new

venture's development. Our study highlights the important role of institutional and infrastructural arrangements in OI, namely, crowdfunding platforms, in favoring the generation of opportunities and ideas as well as the enactment of generated opportunities from the external sources of knowledge.⁷² Crowdfunding platforms, as well as crowdsourcing, allow entrepreneurs to identify ideas from distributed contributors, investors in particular, turning global search into local search.⁷³

Entrepreneurs planning to use equity-funding OI platforms should consider the time and resources needed to manage external sources to avoid losing their focus on their firms' core business activities. In the early stages of firm development, ties with relevant stakeholders and industry actors should benefit firm performance. Also, B2C-oriented startups are likely to benefit more from crowd involvement during the product development stage, compared with B2B-oriented startups that gain more from OI in the later stages of development. The inputs provided by the crowd on equity-funding OI platforms can support the startup's translation of an innovative idea into market and financial success. The findings also inform entrepreneurs' decisions about when to use crowd funding (e.g., Kickstarter) versus equity funding, as well as equity funding platform providers for how to market their platforms to entrepreneurs and how to design the platforms.

Appendix

Interview Protocol

1. Background of the firm and crowdfunding campaign
 - 1.1 When did you found your firm?
 - 1.2 Why did you decide to use equity crowdfunding to finance your firm?
 - 1.3 Did you approach professional investors before going through a crowdfunding process?
 - 1.4 How much did you raise through crowdfunding? From how many investors?
 - 1.5 Who are your crowdfunding investors? Are they from your personal network?
2. Crowd investors' involvement in startup activities
 - 2.1 Are your crowd investors involved in firm's activities?
 - 2.2 Why did you decide not to do so?
 - 2.3 In which activities are your crowdfunding investors involved?
 - 2.4 Could you please provide some examples?
 - 2.5 How many crowdfunding investors are involved in your firm's activities?
 - 2.6 Which competences/information did you acquire from your crowdfunding investors?
3. Organization of OI
 - 3.1 How did you identify their competences and skills that can be helpful to your business?
 - 3.2 How did you ask for their support? Can you provide some example?

- 3.3 How do you manage the communication and relationship with all your investors? Can you provide some example?
- 3.4 How often do you communicate with your investors?
- 3.5 How do you update them about progresses of your business?
- 3.6 Do they have a proactive approach? Do they follow up after your update?
4. Benefits and challenges of crowd investors' involvement
 - 4.1 How did investors' involvement influence your firm's development?
 - 4.2 Which aspects of the business have benefitted more from investors' involvement?
 - 4.3 What challenges did you face in managing the relationship with them?
 - 4.4 Which (if any) negative aspects did you notice about crowdfunding?
5. Firm ownership structure
 - 5.1 Please indicate to what extent the following categories represent the composition (%) of your firm shareholders' structure:
 - Entrepreneur and co-founders
 - Friends and family
 - Crowd equity investors
 - Professional investors (e.g., VCs, angel investors, etc.)
 - Others
 - 5.2. Did professional investors invest in your firm shareholders before your crowdfunding round?
 - 5.3 What are the main differences you have identified between crowd's and professionals' involvement?
6. Founders' personal information
 - Industry tenure (years)
 - Number of previous startup founded
 - Managerial experience (years)

Author Biographies

Francesca Di Pietro is a Postdoctoral researcher at LUISS University, Rome, Italy (email: fdipietro@luiss.it).

Andrea Prencipe is Deputy Rector of LUISS Guido Carli and Professor of Organization and Innovation at LUISS University, Rome, Italy (email: aprencipe@luiss.it).

Ann Majchrzak is Professor of Data Sciences and Operations and USC Associates Chaired Professor of Business Administration for the Marshall School of Business at the University of Southern California, Los Angeles, CA (email: majchrza@usc.edu).

Notes

1. D. J. Teece, "Technological Innovation and the Theory of the Firm: The Role of Enterprise-Level Knowledge, Complementarities, and (Dynamic) Capabilities," *Handbook of the Economics of Innovation*, 1 (2010): 679-730.
2. J. F. Christensen, M. H. Olesen, and J. S. Kjær, "The Industrial Dynamics of Open Innovation—Evidence from the Transformation of Consumer Electronics," *Research Policy*,

- 34/10 (December 2005):1533-1549; M. Bogers, "The Open Innovation Paradox: knowledge Sharing and Protection in R&D Collaborations," *European Journal of Innovation Management*, 14/1 (2011): 93-117; S. A. Alvarez and J. B. Barney, "How Entrepreneurial Firms Can Benefit from Alliances with Large Partners," *Academy of Management Executive*, 15/1 (February 2001): 139-148.
3. Teece, op. cit.; S. Esteve-Pérez and D. Rodríguez, "The Dynamics of Exports and R&D in SMEs," *Small Business Economics*, 41/1 (June 2013): 219-240.
 4. S. Shane, "Startup Failure Rates—The REAL Numbers," *Small Business Trends*, April 28, 2008, <https://smallbiztrends.com/2008/04/startup-failure-rates.html>; E. Bartelsman, S. Scarpetta, and F. Schivardi, "Comparative Analysis of Firm Demographics and Survival: Evidence from Micro-Level Sources in OECD Countries," *Industrial and Corporate Change*, 14/3 (2005): 365-391.
 5. C. G. Brush, P. G. Greene, and M. M. Hart, "From Initial Idea to Unique Advantage: The Entrepreneurial Challenge of Constructing a Resource Base," *Academy of Management Executive*, 15/1 (February 2001): 64-78; Shane, op. cit.
 6. H. Chesbrough and M. Bogers, "Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation," in *Open Innovation: New Frontiers and Applications*, ed. H. Chesbrough, W. Vanhaverbeke, and J. West (Oxford, UK: Oxford University Press, 2014): 3-28; J. West and M. Bogers, "Leveraging External Sources of Innovation: A Review of Research on Open Innovation," *Journal of Product Innovation Management*, 31/4 (July 2014): 814-831.
 7. H. W. Chesbrough and A. K. Crowther, "Beyond High Tech: Early Adopters of Open Innovation in Other Industries," *R&D Management*, 36/3 (June 2006): 229-236; M. Dodgson, D. Gann, and A. Salter, "The Role of Technology in the Shift towards Open Innovation: The Case of Procter & Gamble," *R&D Management*, 36/3 (2006): 333-346; V. Van de Vrande, W. Vanhaverbeke, and G. Duysters, "External Technology Sourcing: The Effect of Uncertainty on Governance Mode Choice," *Journal of Business Venturing*, 24/1 (January 2009): 62-80; A. Salter, P. Criscuolo, and A. L. Ter Wal, "Coping with Open Innovation: Responding to the Challenges of External Engagement in R&D," *California Management Review*, 56/2 (Winter 2014): 77-94.
 8. J. C. Spender, V. Corvello, M. Grimaldi, and P. Rippa, "Startups and Open Innovation: A Review of the Literature," *European Journal of Innovation Management*, 20/1 (2017): 4-30; M. Bogers et al., "The Open Innovation Research Landscape: Established Perspectives and Emerging Themes across Different Levels of Analysis," *Industry and Innovation*, 24/1 (2016): 1-33.
 9. See, for example, M. G. Colombo and L. Grilli, "On Growth Drivers of High-Tech Start-Ups: Exploring The Role of Founders' Human Capital and Venture Capital," *Journal of Business Venturing*, 25/6 (November 2010): 610-626; R. Grimaldi and A. Grandi, "Business Incubators and New Venture Creation: An Assessment of Incubating Models," *Technovation*, 25/2 (February 2005): 111-121.
 10. Bogers et al., op. cit.; Spender et al., op. cit.
 11. J. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, 17/1 (1991): 99-120.
 12. J. A. Schumpeter, *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle* (London, UK: Transaction Publishers, 1934).
 13. C. Criscuolo, P. N. Gal, and C. Menon, "The Dynamics of Employment Growth: New Evidence from 18 Countries," OECD Science, Technology and Industry Policy Papers, No. 14, Organisation for Economic Co-operation and Development, Paris, 2014, <http://dx.doi.org/10.1787/5jz417hj6hg6-en>; C. Criscuolo, P. N. Gal, C. Menon, "Do Micro Start-Ups Fuel Job Creation? Cross-Country Evidence from the DynEmp Express Database," *Small Business Economics*, 48/2 (February 2017): 393-412; J. Wiens and C. Jackson, "The Importance of Young Firms for Economic Growth," (Kansas City, Missouri: Kauffman Foundation, Entrepreneurship Policy Digest, 2015).
 14. S. Blank, "What's a Startup? First Principles," <https://steveblank.com/2010/01/25/whats-a-startup-first-principles/>.
 15. Shane, op. cit.; Bartelsman et al., op. cit.
 16. N. Eftekhari and M. Bogers, "Open for Entrepreneurship: How Open Innovation Can Foster New Venture Creation," *Creativity and Innovation Management*, 24/4 (2015): 574-584; L. F. Mesquita and S. G. Lazzarini, "Horizontal and Vertical Relationships in Developing

- Economies: Implications for SMEs' Access to Global Markets," *Academy of Management Journal*, 51/2 (April 2008): 359-380; Teece, op. cit.; J. Kask and G. Linton, "Business Mating: When Start-Ups Get It Right," *Journal of Small Business & Entrepreneurship*, 26/5 (2013): 511-536.
17. R. Narula, "R&D Collaboration by SMEs: New Opportunities and Limitations in the Face of Globalisation," *Technovation*, 24/2 (February 2004): 153-161; L. Dahlander and D. Gann, "How Open Is Innovation?" *Research Policy*, 39/6 (July 2010): 699-709.
 18. H. Chesbrough, *Open Innovation* (Boston, MA: Harvard Business School Press, 2003); H. Chesbrough, W. Vanhaverbeke, and J. West, *Open Innovation: Researching a New Paradigm* (Oxford: Oxford University Press, 2006).
 19. Spender et al., op. cit.; Chesbrough and Bogers, op. cit.; Bogers et al., op. cit.
 20. G. George, J. Wiklund, and S. Zahra, "Ownership and the Internationalization of Small Firms," *Journal of Management*, 31/2 (April 2005): 210-233.
 21. E.g. Colombo and Grilli, op. cit.; T. Hellmann and M. Puri, "Venture Capital and the Professionalization of Start-Up Firms: Empirical Evidence," *The Journal of Finance*, 57/1 (February 2002): 169-197; H. J. Sapienza, S. Manigart, and W. Vermeir, "Venture Capitalist Governance and Value Added in Four Countries," *Journal of Business Venturing*, 11/6 (November 1996): 439-469.
 22. E.g. S. N. Kaplan and P. E. Strömberg, "Characteristics, Contracts, and Actions: Evidence from Venture Capitalist Analyses," *The Journal of Finance*, 59/5 (October 2004): 177-210; H. J. Sapienza, "When Do Venture Capitalists Add Value?" *Journal of Business Venturing*, 7/1 (January 1992): 9-27; I. C. MacMillan, D. M. Kulow, and R. Khoylian, "Venture Capitalists' Involvement in Their Investments: Extent and Performance," *Journal of Business Venturing*, 4/1 (January 1989): 27-47; Y. V. Hochberg, A. Ljungqvist, and Y. Lu, "Whom You Know Matters: Venture Capital Networks and Investment Performance," *The Journal of Finance*, 62/1 (February 2007): 251-301.
 23. M. Gorman and W. A. Sahlman, "What Do Venture Capitalists Do?" *Journal of Business Venturing*, 4/4 (July 1989): 231-248.
 24. E.g. F. Bertoni, M. G. Colombo, and L. Grilli, "Venture Capital Financing and the Growth of High-Tech Start-Ups: Disentangling Treatment from Selection Effects," *Research Policy*, 40/7 (September 2011): 1028-1043; L. Bottazzi, M. Da Rin, and M. T. Hellmann, "Who Are the Active Investors? Evidence from Venture Capital," *Journal of Financial Economics*, 89/3 (September 2008): 488-512.
 25. MacMillan et al., op. cit.; Sapienza et al., op. cit.
 26. V. H. Fried and R. D. Hisrich, "The Venture Capitalist: A Relationship Investor," *California Management Review*, 37/2 (Winter 1995): 101-113.
 27. M. Van Osnabrugge, "A Comparison of Business Angel and Venture Capitalist Investment Procedures: An Agency Theory-Based Analysis," *Venture Capital*, 2/2 (2000): 91-109; S. Dutta and T. B. Folta, "A Comparison of the Effect of Angels and Venture Capitalists on Innovation and Value Creation," *Journal of Business Venturing*, 31/1 (January 2016): 39-54.
 28. C. M. Mason and R. T. Harrison, "Informal Venture Capital: A Study of the Investment Process, the Post-investment Experience and Investment Performance," *Entrepreneurship & Regional Development*, 8/2 (1996): 105-126.
 29. D. Politis, "Business Angels and Value Added: What Do We Know and Where Do We Go?" *Venture Capital*, 10/2 (2008): 127-147.
 30. H. Chesbrough, "Designing Corporate Ventures in the Shadow of Private Venture Capital," *California Management Review*, 42/3 (Spring 2000): 31-49; H. Chesbrough, "Making Sense of Corporate Venture Capital," *Harvard Business Review*, 80/3 (March 2002): 90-99.
 31. G. Dushnitsky and M. J. Lenox, "When Do Incumbents Learn from Entrepreneurial Ventures? Corporate Venture Capital and Investing Firm Innovation Rates," *Research Policy*, 34/5 (June 2005): 615-639; R. Katila, J. D. Rosenberger, and K. M. Eisenhardt, "Swimming with Sharks: Technology Ventures, Defense Mechanisms and Corporate Relationships," *Administrative Science Quarterly*, 53/2 (June 2008): 295-332; M. V. Maula, "Corporate Venture Capital and the Value-Added for Technology-Based New Firms" (PhD diss., Helsinki University of Technology, 2001); G. Dushnitsky and M. J. Lenox, "When Does Corporate Venture Capital Investment Create Firm Value?" *Journal of Business Venturing*, 21/6 (November 2006): 753-772.
 32. L. Bottazzi, M. Da Rin, and T. Hellmann, "The Changing Face of the European Venture Capital Industry: Facts and Analysis," *The Journal of Private Equity*, 7/2 (Spring 2004): 26-53.

33. Grimaldi and Grandi, op. cit.
34. E.g. T. H. Rubin, T. H. Aas, and A. Stead, "Knowledge Flow in Technological Business Incubators: Evidence from Australia and Israel," *Technovation*, 41 (July/August 2015): 11-24; J. L. Scillitoe and A. K. Chakrabarti, "The Role of Incubator Interactions in Assisting New Ventures," *Technovation*, 30/3 (March 2010): 155-167.
35. C. Battistella, A. F. De Toni, and E. Pessot, "Open Accelerators for Start-Ups Success: A Case Study," *European Journal of Innovation Management*, 20/1 (2017): 80-111.
36. L. Huang and A. P. Knight, "Resources and Relationships in Entrepreneurship: An Exchange Theory of the Development and Effects of the Entrepreneur-Investor Relationship," *Academy of Management Review*, 41/1 (January 2017): 80-102.
37. P. Belleflamme, T. Lambert, and A. Schwienbacher, "Crowdfunding: Tapping the Right Crowd," *Journal of Business Venturing*, 29/5 (September 2014): 585-609.
38. P. Baeck, L. Collins, and B. Zhang, "Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014" (London: Nesta and the University of Cambridge, 2014); E. M. Gerber, J. S. Hui, and P. Y. Kuo, "Crowdfunding: Why People Are Motivated to Post and Fund Projects on Crowdfunding Platforms," *Proceedings of the International Workshop on Design, Influence, and Social Technologies: Techniques, Impacts and Ethics 2* (2012): 11; <http://www.crowdfundinsider.com/2015/01/60767-rewards-equity-and-a-crowd-in-between>.
39. Baeck et al., op. cit.; Gerber et al., op. cit.
40. European Commission, "Crowdfunding in the EU Capital Markets Union," 2016, https://ec.europa.eu/info/system/files/crowdfunding-report-03052016_en.pdf; European Commission, "Crowdfunding Innovative Ventures in Europe—The Financial Ecosystem and Regulatory Landscape," 2014, <https://ec.europa.eu/digital-single-market/en/news/crowdfunding-innovative-ventures-europe-financial-ecosystem-and-regulatory-landscape-smart>.
41. European Commission, "Crowdfunding Innovative Ventures in Europe"; European Commission, "What Does It Mean to Be an Accredited Investor?," 2013, <https://investor.gov/additional-resources/news-alerts/alerts-bulletins/investor-bulletin-accredited-investors>.
42. https://www.sec.gov/oiea/investor-alerts-bulletins/ib_crowdfunding-.html.
43. Baeck et al., op. cit.
44. R. Wardrop, B. Zhang, R. Rau, and M. Gray, "Moving Mainstream: The European Alternative Finance Benchmarking Report," 2015, <http://www.iberglobal.com/files/2015/2015-uk-alternative-finance-benchmarking-report.pdf>.
45. H. Kraemer-Eis, S. Signore, and D. Prencipe, "The European Venture Capital Landscape: An EIF Perspective" (working paper, 2016), http://www.eif.org/news_centre/publications/eif_wp_34.pdf.
46. T. Ohr, "Top 15: Europe's Biggest Startup Hubs in 2016," <http://www.eu-startups.com/2016/06/top-15-europes-biggest-startup-hubs-in-2016/>.
47. Wardrop et al., op. cit.; European Commission, "Crowdfunding in the EU Capital Markets Union."
48. European Commission, "Crowdfunding Innovative Ventures in Europe."
49. European regulation allows for different types of investors: self-certified sophisticated investors who have invested previously in unlisted firms, high net-worth individuals (income of £100,000 and net worth £250,000, excluding primary residence thresholds to investment); and "sophisticated" investors who are aware of the risk they face in investing in unlisted firms and therefore have a limit on the investible amount proportionally to their worth. This is in line with the Financial Conduct Authority (FCA), which reports that crowd investors "tend to be high-net worth individuals with investment experience" (FCA, 2013, p. 37) as reported in H. Landström and C. Mason, *Handbook of Research on Business Angels* (Cheltenham: Edward Elgar, 2016), 28. A. Zeoli, "Changes to 'Accredited Investor' Definition Could Clip the Wings of Angel Investors," 2014, <https://www.crowdfundinsider.com/2014/06/42279-changes-accredited-investor-definition-clip-wings-angel-investors/>.
50. Crowdcube 2015 review, <https://www.crowdcube.com/2015>; Seedrs 2014 review, <http://www.crowdfundinsider.com/2015/03/64474-seedrs-2014-a-year-in-review-infographic>; Seedmatch 2015 review, <https://www.seedmatch.de/infografik>; Wised 2015 review, <https://www.wised.com/fr/statistiques>; Fundedbyme review, <https://www.fundedbyme.com/en/>.
51. Successful entrepreneurs are those who had achieved 100% of their targeted amount a minimum of six months prior to the start of our data collection (interview), who were still in business two years after firm inception. The first criteria—achieving 100% of the targeted equity amount—was determined by compiling a list from each of the platforms, of all firms

that had achieved 100% of the target amount by the due date of the equity crowdfunding campaign. We selected only successful campaigns since interaction between entrepreneurs and the crowd of investors takes place only if the firm is able to raise the amount requested. We used the second criterion—that is, obtaining equity funding a minimum of six months prior to our data collection (interview)—since at least six months after a successful campaign seemed necessary to allow entrepreneurs to interact and build relationships with the crowd. For the third criterion—that is, being in business for a minimum of two years after their founding date—we examined the CrunchBase profile and deleted firms with fewer than two years' experience. We wanted to target early-stage firms beyond the idea stage that had reached a minimum threshold of product/service development that allowed them to make use of the crowd.

52. During the data collection process, the lead author was living in London and working for an early-stage investment fund. Therefore, data collection was facilitated by the closeness of the lead author to the startup community. Following an interview, the interviewee often facilitated connections with other entrepreneurs who met our sampling criteria. In addition, entrepreneurs were "rewarded" with a final report mapping the activities that are supported by investors, and these firms' scores/levels of involvement compared with the other startups in the sample. The entrepreneurs in our sample showed great interest in the research due to the novelty and peculiarity of the topic, and were keen to share their experience with the lead author.
53. Baeck et al., op. cit.
54. K. M. Eisenhardt and M. E. Graebner, "Theory Building from Cases: Opportunities and Challenges," *Academy of Management Journal*, 50/1 (February 2007): 25-32.
55. B. Glaser and A. Strauss, *The Discovery of Grounded Theory* (Hawthorne, NY: Aldine Publishing, 1967).
56. D. A. Gioia, K. G. Corley, and A. L. Hamilton, "Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology," *Organizational Research Methods*, 16/1 (January 2012): 15-31.
57. P. Gompers, A. Kovner, J. Lerner, and D. Scharfstein, "Performance Persistence in Entrepreneurship," *Journal of Financial Economics*, 96/1 (April 2010): 18-32; F. Lafontaine and K. Shaw, "Serial Entrepreneurship: Learning by Doing?" (working paper, National Bureau of Economic Research, Cambridge, MA, 2014); M. S. Dahl and T. Reichstein, "Are you experienced? Prior experience and the survival of new organizations," *Industry and Innovation*, 14/5 (December 2007): 497-511; Bogers et al., op. cit.
58. G. N. Chandler and D. W. Lyon, "Entrepreneurial Teams in New Ventures: Composition, Turnover and Performance," *Academy of Management Proceedings*, August 2001.
59. Eftekhari and Bogers, op. cit.; F. Michelino, A. Cammarano, E. Lamberti, and M. Caputo, "Open Innovation for Start-Ups: A Patent-Based Analysis of Bio-Pharmaceutical Firms at the Knowledge Domain Level," *European Journal of Innovation Management*, 20/1 (2017): 112-134; D. H. Hsu, "Experienced Entrepreneurial Founders, Organizational Capital, and Venture Capital Funding," *Research Policy*, 36/5 (June 2007): 722-741.
60. We measure managerial experience as entrepreneurs' years of work experience in a managerial position, and we consider managerial-expert entrepreneurs as those with length of managerial experience above the sample mean. We measure industry experience as entrepreneurs' years of work experience in the industry in which they were operating, and we consider industry-expert entrepreneurs as those whose industry experience was above the sample mean.
61. C. G. Brush, P. G. Greene, and M. M. Hart, "From Initial Idea to Unique Advantage: The Entrepreneurial Challenge of Constructing a Resource Base," *The Academy of Management Executive*, 15/1 (February 2001): 64-78.
62. See, for instance, L. B. Jeppesen and K. Lakhani, "Marginality and Problem-Solving Effectiveness in Broadcast Search," *Organization Science*, 21/5 (September/October 2010): 1016-1033; K. Laursen and A. Salter, "Open for Innovation: The Role of Openness in Explaining Innovation Performance among UK Manufacturing Firms," *Strategic Management Journal*, 27/2 (February 2006): 131-150.
63. See, for example, Colombo and Grilli, op. cit.
64. K. Pavitt, "Sectoral Patterns of Technical Change: Towards a Taxonomy and a Theory," *Research Policy*, 13/6 (December 1984): 343-373.
65. Colombo and Grilli, op. cit.

66. See, for example, Colombo and Grilli, op. cit.; Hellmann and Puri, op. cit.
67. D. Stieger, K. Matzler, S. Chatterjee, and F. Ladstaetter-Fussenegger, "Democratizing Strategy: How Crowdsourcing Can Be Used for Strategy," *California Management Review*, 54/4 (Summer 2012): 44-68; R. Whittington, L. Cailluet, and B. Yakis-Douglas, "Opening Strategy: Evolution of a Precarious Profession," *British Journal of Management*, 22/3 (September 2011): 531-544.
68. Brush et al., op. cit.; G. P. West and T. W. Noel, "The Impact of Knowledge Resources on New Venture Performance," *Journal of Small Business Management*, 47/1 (January 2009): 1-22.
69. See, e.g., E. Enkel, J. Perez-Freije, and O. Gassmann, "Minimizing Market Risks through Customer Integration in New Product Development: Learning from Bad Practice," *Creativity and Innovation Management*, 14/4 (December 2005): 425-437; H. Chesbrough, "Open Innovation: Where We've Been and Where We're Going," *Research-Technology Management*, 55/4 (2012): 20-27; L. L. Huston and N. N. Sakkab, "Connect and Develop," *Harvard Business Review*, 84/3 (March 2006): 58.
70. L. B. Jeppesen and L. Frederiksen, "Why Do Users Contribute to Firm-Hosted User Communities? The Case of Computer-Controlled Music Instruments," *Organization Science*, 17/1 (January/February 2006): 45-63.
71. Gerber et al., op. cit.; Belleflamme et al., op. cit.
72. Bogers et al., op. cit.
73. A. Afuah and C. L. Tucci, "Crowdsourcing as a Solution to Distant Search," *Academy of Management Review*, 37/3 (2012): 355-375.