Drivers of Success in Social Innovation: Insights into Competition in Open Social

Innovation Contests

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Abstract

Social innovation is a fast-growing field of practice that has caught the attention of management and entrepreneurship scholars. The recent excitement surrounding "open social innovation" contests raises the question of what makes social innovation solutions *successful* contenders in these ubiquitous contests. We used uniquely assembled data, including data generated from external evaluators, to explore what determines success in an open social innovation contest (n = 150 out of 871 entries) in the field of poverty alleviation. We found that innovators who had networks with corporations and those who had commercial orientations were more likely to succeed in open social innovation contests. We also discovered that the perceived usefulness and innovativeness of social innovation solutions mediated these positive relationships. Our study offers early insights that deepen our understanding of success in the growing practice of open social innovation.

Keywords: social innovation; open social innovation; solution; competition; contest

Highlights
- Explaining the comparative success or failure of socially innovative solutions
- Exploring drivers of success in open social innovation contests
- Networks with corporations and commercial orientations are associated with success
- Perceived usefulness and innovativeness are the mediators of success
- A new conversation beyond ideological debates in social innovation

1. INTRODUCTION

Social innovation is a relatively new practice proposed to tackle many societal problems, from poverty and health crises to climate change. As a practice, social innovation involves generating ideas, developing solutions, and scaling these solutions to create an impact (Seelos & Mair, 2007). However, discussions among innovators, policy makers, and funders typically center on the *solution* and often equate social innovation solely with the solution (Phills et al., 2008). In common with new solutions resulting from any kind of innovation— scientific or engineering as well as "social"—some social innovation solutions flourish (or succeed) while others remain unseen (or fail). What explains the comparative success or failure of socially innovative solutions? A large body of research on social innovation has examined success at the level of *organizations* (e.g., Ramus et al., 2018; Wry & Zhao, 2018); however our knowledge of the drivers of success at the level of social innovation *solutions* is limited. Understanding success at the solution level is also hampered by the usually conceptual nature of research on social innovation (e.g., Cajaiba-Santana, 2014) or researchers' reliance on anecdotal evidence (e.g., Avelino et al., 2019). Thus, we lack a thorough and systematic interrogation and problematization of *success* as a core analytical and theoretical concept in research on social innovation.

Despite its non-commercial intent, social innovation is also subjected to a competitive selection process that resembles the "3% rule" in top-tier journal publications: many attempt but few succeed. Competition is an integral element of contests, for example in the form of challenges or prizes, which are popular tools applied in open social innovation (OSI). Open and participatory forms and processes of social innovation are increasingly used by governments, businesses, and third sector organizations to scout for scalable and impactful social innovation solutions. In particular, the challenges inherent in the COVID-19 pandemic have triggered a broader interest in OSI. For examples, see the #WirVsVirus (#WeVsVirus)

experiment in Germany documented in Gegenhuber (2020) and the EUvsVirus Hackathon documented by Bertello et al (2021). Apart from these examples, the nascent literature on OSI is primarily conceptual (Chesbrough et al., 2014; McGahan et al., 2020).

Scholars have only recently called for more attention on how societal challenges can be addressed through open innovation (OI) (Chesbrough & Di Minin, 2014; McGahan et al, 2020). Specifically, there is a dearth of research that explains why and how some social innovation solutions succeed in OSI contests and others do not. We follow the invitation for more systematic work and focus on the competition among social innovation solutions to unpack the drivers of success in OSI contests. In this study, we asked: *What factors explain the success of social innovation solutions in OSI contests?* We view OSI contests as events and infrastructure in time and space akin to a "beauty contest" and also as a subset of the broader OSI phenomena (Mair & Gegenhuber, 2021). OSI initiatives differ in reach and scope. OSI contests are a popular approaches to OSI, narrow in scope but broad in reach (Mair & Gegenhuber (2021). We interrogated four central factors discussed in the social innovation literature that can potentially explain success in OSI contests, which are *networks with corporations, commercial orientation, perceived usefulness and innovativeness* of the social innovation solutions. Because the literature says little whether and how these factors influence success in OSI contests, we engaged in playful exploration (Wennberg & Anderson, 2020) to interrogate what explains 'success.'

2. SUCCESS IN OPEN SOCIAL INNOVATION CONTESTS

2.1. Networks with Corporations

Past research into for-profit innovation demonstrates that innovators' networks—their relationships, social structure, and memberships—positively influence their ability to draw upon resources, trust, and information, and recognize opportunities to improve performance

(e.g., Boh et al., 2020; Davidsson & Honig 2003). Likewise, the burgeoning literature on OI reports numerous anecdotal stories and cases regarding the role of innovation communities and collaborations as a driver of success for firms orchestrating OI contests (Chesbrough, 2017; Fichter, 2009). Research in this domain demonstrates the importance of cooperation among firms and individuals and among innovators (Fichter, 2009) in multi-level innovation systems and the enabling role of intermediaries (Howells, 2006) in OI. This counters the conventional view of the "lone wolf" innovator (Singh & Fleming, 2010).

Obviously, there are numerous factors that could drive success in OSI. However, in this article, we focus on networks between social innovators and corporations. Given the limited research on success in OSI contests and specifically on the role of networks, we do not know whether networks with corporations are an *asset or liability or both* for social innovators participating in OSI contests. We aim to interrogate whether and to what extent the networks formed between social innovators and corporations play a role in success in OSI contests.

2.2. Commercial Orientation

OI has multifaceted motives and orientations. On the one hand, openness is rooted in commercial orientation (e.g., to achieve a firm's long-term financial performance; Lichtenthaler, 2011). On the other hand, openness could also have non-pecuniary orientations (e.g., to develop deeper relationships with users, Marullo et al., 2021). The boundary between the two orientations for OI is not clear-cut because even a non-pecuniary orientation can be an intermediate step toward pecuniary objectives (c.f. Marullo et al., 2021; McGahan et al., 2020). The two orientations can also hybridize to form another type called delayed-pecuniary (e.g., reputation building, reciprocity, a sense of community; see Suhada et al., 2021).

What matters more in this study is the orientation of individual innovators participating in OI/OSI. In the case of the #WirVsVirus OSI contest in Germany (Gegenhuber et al., 2021), tens of thousands of citizens participated as social innovators and collaborated with no obvious

monetary benefits. However, in the #EUvsVirus OSI contest, financial rewards were provided to 100 winners (Bertello et al., 2021).

The insights above suggest that contenders in OSI contests can have a commercial and/or non-commercial orientation. Given the absence of empirical studies on which orientation (commercial or other) is more associated with success in OSI contests, we do not know whether commercial or non-commercial orientation hampers or enables such success. In this article, we seek to examine the role of commercial orientation in success in OSI.

2.3. Usefulness

Success in OSI contests is determined by judges and experts (Bertello et al., 2021) who are gatekeepers in the competitive part of the process. The judgment process in OSI contests relies on "on-the-spot judgment" (akin to the talent program *American Idol*) where the perceptions of judges matter. Essentially, judges' perceptions of the *usefulness* of a social innovation solution—the ability and ease with which the solution can tackle social ills—can influence whether the solution becomes successful in the contest and later in the real world (as winners are often endowed with more publicity, which attract more resources, talent, and volunteers).

Usefulness is partly an objective reality that can be demonstrated empirically (e.g., the technical features of a new solar-powered laptop) and partly a subjective evaluation that is constructed by social innovators using certain narratives. Usefulness is influenced by the people and organizations that develop, support, and promote a social innovation solution and the resources to support it. For instance, solar-powered laptops for children in the Third World may be perceived as more useful when the solution is backed by tech giants (e.g., Microsoft) and when there is a revenue model to scale up the project for impact. In this article, we seek to understand how networks with corporations and commercial orientation (Parts 2.1 and 2.2 above) can influence the usefulness and ultimately the success of a social innovation solution.

2.4. Innovativeness

Lastly, success in OSI contests is also determined by how innovative a social innovation solution is perceived to be by judges and experts (Bertello et al., 2021; Gegenhuber, 2020). Like usefulness, the degree of innovativeness of a social innovation solution is part objective reality and part subjective construction involving the solution itself, the social innovators, and the judges. Innovativeness—defined as creating novelty and user benefit (Chandy & Tellis, 2000)—has been mentioned as an important quality and characteristic of an innovation. While innovativeness has been studied in innovation contests (Chan & Parhankangas, 2017), it has not been examined in the specific context of OSI contests. The innovativeness of a social innovation solution can be influenced objectively and subjectively by the people and organizations that develop, support, and promote the solution and the availability of resources to further enhance it. For example, an e-learning platform for children in the Third World may be perceived to be more innovative when it is backed by a resource-rich corporation (e.g., Google) and when it is known that a revenue model exists to further refine the platform. In this article, we seek to explore whether and how networks with corporations and commercial orientation (Parts 2.1 and 2.2 above) influence the innovativeness and usefulness and ultimately the success of a social innovation solution.

3. METHODOLOGY

Given the multiplicity and tensions in the literature about factors that can potentially influence success in OSI contests, we engage in playful exploration of the data using the four variables discussed above. Our approach is a type of quantitative exploration (Wennberg & Anderson, 2020; see also Muñoz et al., 2018) that is suitable for exploring novel and important phenomena without the need to pre-suppose any hypotheses due to the paucity of theory capable of explaining the phenomenon at hand. In doing so, we engaged in playful modelling of relationship between the four variables above to explain 'success' in OSI contests.

3.1. Samples and Procedures

Our sampling pool comes from 871 social innovation[1] solutions from across 83 countries (eBay, 2011) that participated in a major OSI contest in the field of poverty alleviation called "Powering Economic Opportunity" (PEO), which was hosted by eBay Foundation and Ashoka Changemakers (details of the competition are attached in Appendix I). The data were collected in January 2018 and validated using a two-pronged approach: first, all solutions had to be actual winners or non-winners in the said competition, and second, all solutions had to pass the screening of a panel of experts. We randomly sampled 150 social innovation solutions, including 15 actual winners (i.e., 5 awardees and 10 finalists) and 135 actual non-winners, representing 17.2% of the 871 entries in the publicly available PEO online database. "Non-winner" means that a social innovation solution failed to be nominated as a winner or finalist and was excluded from the public voting stage.

The data that we acquired from the database comprised the objective of the initiative, the societal problem, the solution, and the founders' background. After scraping the text data from the databases, we transformed them into a two-page vignette that described the *mission*, *strategy*, *impact*, and *resources and networks of the social innovator* (see a sample vignette in Appendix II). Each vignette also included supplementary data from other sources (e.g., key figures from business plans, organizational documents, and resumes of the social innovators). We also cross-checked the validity of the vignette data against various sources (e.g., LinkedIn, Facebook, websites). A third-person voice was used to narrate each vignette to ensure consistency and comparability of the profiles in the rating process.

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[1] In this study, we focus on "social innovation" rather than "social enterprises" or "social innovation inside social enterprises." We follow Phillips et al.'s definition (2015, p.430) that social innovation can occur "across several forms of organization, from for-profit firms that often create social value through their CSR programs, to dual mission organizations forming new hybrid models." Our data follow this definition.

We invited two expert raters—a director of a large-impact investing company based in North America and a well-known scholar with expertise in social innovation—to rate the 150 vignettes of social innovation solution using quantitative content analysis (Barringer et al., 2005) with the Qualtrics platform. Each expert evaluated 95 of the 150 vignettes (a total of 190 evaluations) with 40 (or 42.1%) overlap between the two raters. The inter-rater reliability was 0.799, which was satisfactory. The results provided assurance that the actual winners in the PEO contest scored highly in the evaluation results by the raters, and conversely for the non-winners. We then performed various direct and indirect model estimations including placing usefulness and innovativeness simultaneously as mediators (or parallel mediation analysis) to explore the conceptual model.

3.2. Measurement

3.2.1. Dependent Variable

Social Innovation Success (SIS) was measured using social and financial *impact* (see Appendix III for the measurement items). We combined the scores on impact for each social innovation solution as rated by the experts for each solution.

3.2.2. Independent Variables

The *Networks with Corporations* variable was coded as 0 if the social innovation solution provider had no networks with corporations or 1 if it had networks with corporations.

The *Commercial Orientation* variable was coded as 0 if the social innovation solution provider had a non-commercial orientation or 1 if it had a commercial orientation.

3.2.3. Mediating Variable

The *Usefulness* variable was measured using two items (each scored from 0 to 100) that capture the ability and the ease with which the solution can achieve the social innovators' goals (see Appendix III). We combined the scores of the two items for analysis.

The *Innovativeness* of the social innovator (i.e., the ability to innovate) was measured using two items (each scored from 0 to 100) that capture solution newness and user benefits (Chandy & Tellis, 2000; see Appendix III). We combined the scores of the two items for analysis.

3.2.4. Control Variables

We also included several control variables, namely, age, gender, education, and prior work experience in the business sector.

4. RESULTS

The descriptive results of the study are shown in Table 1. The results showed that most of the social innovation solutions (97.3%) were already established, and that 78.7% of the solutions were created by one founder while 18.7% were created by between two and five founders. The majority of the social innovation solutions were created as an independent project or entity (83.3%), while the remainder were developed as either a sub-project of non-profit organizations (16%) or a sub-project of for-profit companies' social responsibility programs (0.7%). Most of the solutions (93.2%) had founding members with a Bachelor's degree or above. Most of the solutions (64%) had a higher proportion of male founders or one male founder only. The average age of the founding team members was relatively young, at 33.31 years ($SD = 10.61$), and 67.3% of all founder(s) had prior work experience in the business sector. Importantly, 75.3% of the social innovation solutions had established a commercial model to generate revenue, and 80.7% had developed networks with for-profit companies. The average score of Usefulness (potentially ranging from 0 to 200) was 117.51 ($SD = 26.16$), the

average score of Innovativeness (potentially ranging from 0 to 200) was 116.37 (*SD* = 31.57), and the average score of Social Innovation Success (potentially ranging from 0 to 200) was 112.68 (*SD* = 26.77).

We further conducted an independent-samples *t*-test to compare the mean scores of the actual winners and non-winners of the contest. The results suggested that the ratings of the two expert raters were consistent with the actual contest results, in that the actual winners of the PEO contest received significantly higher scores on Social Innovation Success than the non-winners with a mean difference of 24.8 (df = 16.02, t = -2.93, $p < 0.05$).

---Insert Table 1 about here ---

Next, we conducted correlation analyses (Table 2). As shown in Table 2, Networks with Corporations was positively correlated with Usefulness ($r = 0.280$, $p < 0.01$), Innovativeness ($r = 0.172$, $p < 0.05$), and Social Innovation Success ($r = 0.216$, $p < 0.01$). Commercial Orientation was positively correlated with Usefulness ($r = 0.253$, $p < 0.01$), Innovativeness ($r = 0.245$, $p < 0.01$), and Social Innovation Success ($r = 0.268$, $p < 0.01$). Usefulness ($r = 0.785$, $p < 0.01$) and Innovativeness ($r = 0.694$, $p < 0.01$) were also positively correlated with Social Innovation Success.

---Insert Table 2 about here ---

Our playful exploration led us to test two mediating variables (Usefulness and Innovativeness) simultaneously to explain success in OSI contests, or so-called parallel mediation analysis (MacKinnon & Luecken, 2008). The first model (Model 1, in Table 3) tested whether the independent variables Networks with Corporations and Commercial Orientation affect Social Innovation Success. The second and the third model tested whether Networks with Corporations and Commercial Orientation, respectively, affect Usefulness (Model 2, in Table 3) and Innovativeness (Model 3, in Table 3). The last model (Model 4, in Table 3) tested

whether the two mediators (Usefulness and Innovativeness) affect Social Innovation Success when the independent variables are controlled.

Table 3 shows the standardized path coefficients of the mediation analysis, and their significance test results. We followed Kenny's (2008) three-step mediation approach. The parallel mediation analysis showed that the two independent variables Networks with Corporations ($\beta = 0.237$, $p < 0.01$, Model 1) and Commercial Orientation ($\beta = 0.253$, $p < 0.001$, Model 1) were positively correlated with Social Innovation Success. This suggests a positive role of networks with corporations and commercial orientation in social innovation success. Networks with Corporations also had significant positive relationships with Usefulness ($\beta = 0.299$, $p < 0.001$, Model 2) and Innovativeness ($\beta = 0.188$, $p < 0.05$, Model 3). Furthermore, Commercial Orientation was positively correlated with Usefulness ($\beta = 0.234$, $p < 0.01$, Model 2) and Innovativeness ($\beta = 0.224$, $p < 0.01$, Model 3). Model 4 further indicated that after adding the two mediators (Usefulness and Innovativeness), the effects of Networks with Corporations ($\beta = 0.014$, $p > 0.05$, Model 4) and Commercial Orientation ($\beta = 0.074$, $p > 0.05$, Model 4) on Social Innovation Success became non-significant. These findings imply that Usefulness and Innovativeness fully mediate the Networks with Corporations–Social Innovation Success and Commercial Orientation–Social Innovation Success relationships.

Additionally, the results showed that having more men than women in the founding team had a positive and significant influence on Social Innovation Success ($\beta = 0.177$, $p < 0.05$, Model 1), Usefulness ($\beta = 0.171$, $p < 0.05$, Model 2), and Innovativeness ($\beta = 0.191$, $p < 0.05$, Model 3). Having founding members with a higher educational level was also positively correlated with Usefulness of social innovation solutions ($\beta = 0.158$, $p < 0.05$, Model 2).

To further assess the robustness of our results, we used bootstrapping (5,000 resamples) to test the mediation model. The analyses demonstrated that Networks with Corporations and Commercial Orientation had significant indirect effects on Social Innovation Success through Usefulness and Innovativeness, respectively (see Appendix IV for more details of the bootstrapping results). In Figure 1, we summarize the mediation analysis results in a path diagram that indicates the standardized estimates of each path of the overall model.

---Insert Figure 1 about here ---

5. DISCUSSION AND CONCLUSION

This study partly elucidates why certain social innovation solutions are more successful than others, a timely analysis considering the growing excitement around and ubiquity of OSI contests (Bertello et al., 2021; Chesbrough & Di Minin, 2014; Gegenhuber, 2020; Gegenhuber et al., 2021). We conducted a quantitative exploration (Wennberg & Anderson, 2020) of factors that explain success in social innovation solutions in OSI contests. We conceived OSI as an event and infrastructure in time and space that rigorously selects social innovation solutions. We quantitatively explored and tested several factors that enhance success in OSI contests using 150 social innovation solutions randomly selected from an eBay–Ashoka-hosted contest and asking two expert raters to evaluate the solutions.

This study is a first attempt to examine the drivers of success in social innovation solutions in contests. The results demonstrate that the networks with corporations, commercial orientation, and perceived usefulness and innovativeness of social innovation solutions and their providers are important drivers of social innovation success. Our study extends the current focus on understanding social enterprises and entrepreneurship (Saebi et al., 2019) as organizations and connects it to OSI (Chesbrough & Di Minin, 2014; Mair & Gegenhuber, 2021) by examining the factors that drive success in OSI contests.

Our findings generate evidence that will help scholars transcend the prevalent stereotypes, as promoted by Ashoka and other organizations, of heroes who "change the world" and succeed where markets and governments have failed (c.f. Drayton, 2006; Elkington & Hartigan, 2008). Indeed, some scholars have already warned against this conceptualization (Dacin et al., 2010). We demonstrate that social innovation success is not a lone effort but often depends on networks with and resources drawn from powerful and high-status actors such as corporations, as well as a conscious effort to embrace a commercial orientation and the development of social innovation solutions that are useful in achieving their goals and are novel and bring value to users (innovativeness). The findings also reveal the (currently) positive influence of demographic variables, such as social innovators being of male gender and having a higher educational level, on social innovation success. These demographic correlations suggest that success in OSI contests is driven by similar factors to those of success in commercial ventures (Jennings & Brush, 2013) and alerts us to the possibility of gender stereotyping in social venturing (Lee & Huang, 2018).

Our study constitutes an effort to develop a new conversation beyond ideological debates over the meaning of social innovation (e.g., neo-liberalism vs heroism; Mair, 2020) while responding to calls for more context-sensitive research that considers the temporal, spatial, or field-specific nature of social innovation (e.g., contests in poverty alleviation) (Chandra & Kerlin, 2021; Mair, 2020). Our findings help explain how business methods and practices matter and how they creep into a field of practice (in this case social innovation; Dees & Anderson, 2002). Methods such as OSI contests, which are modeled after competitions typically used in commercial settings, are clearly a driver for the rising influence of business methods in social innovation. However, while competition can help select promising social innovation solutions, it can also drive out the much-welcomed heterogeneity in models needed

to tackle social problems that are complex in nature, where we might benefit from a more diverse set of solutions.

Our study also contributes to a better understanding of legitimacy-building strategies for and in social innovation. Contests—often backed by powerful multinational firms, such as eBay in our study—help drive the legitimacy of social innovation as a sector and method of tackling social problems. Additionally, we show that problem solvers in OSI contests deploy the "rhetoric of legitimacy" (Ruebottom, 2013) to win contests and thereby gain visibility, funding, and future awards. Although we did not specifically study rhetorical legitimacy (c.f. Wry et al., 2011), our data on social innovation profiles present evidence of *how* social innovation solutions are framed rhetorically, including using the rhetoric of collaboration with powerful actors, of financial sustainability, and of the capability to innovate.

Finally, our study contributes to the nascent OSI literature (Bertello et al., 2021; Mair & Gegenhuber, 2021; McGahan et al., 2020) by unravelling the patterns (and possible biases) associated with social innovation success and the understudied aspects of solutions in social innovation. These patterns are in turn helpful in developing an understanding of social innovation as a practice that is driven not by ideological debates (Mair, 2020) but by *solutions* that are shaped by social, economic, and political realities and institutional legacies.

This study is exploratory and relies on cross-sectional data from a single OSI contest. It is also a study of a "beauty contest" in social innovation solutions (i.e., selecting the "solvers") in contrast to conventional studies of OSI (which focus on the "seekers"). Thus, the results are not generalizable across all social innovation contests nor the seekers' side of OSI. However, this study opens a new research direction that focuses on *competition* and *success* as variables of interest in social innovation research. It also paves the way for future comparative studies

on OSI contests across space, time, and problem domains (e.g., healthcare, climate change), different funders and different effects of high-status organizations and individuals.

Future research could also explore and unpack how interpretations of success change over time and how developments in success metrics or evaluations matter. Another promising research question is the matter of who convenes the contests and the influence of contest rules on social innovation outcomes (the seekers' perspective). Future research could also focus on the solvers' perspective, particularly the rhetorical and social problem intervention strategies deployed by winners of OSI contests. The roles of gender and other demographic variables (e.g., education, age, or country of origin) and their effect on rhetorical legitimacy when competing in OSI contests is also a fruitful avenue. Finally, we call on future scholars to adopt a user's perspective by studying how beneficiaries respond to different social innovation solutions. We hope that this study will inspire future studies in OSI and particularly social innovation success.

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Table 1: Descriptive Statistics (n = 150)

Variable	%
Social innovation solutions establishment status	
Established	97.3
Prototype	2.7
Legal Status	
An independent project/entity	83.3
A sub-unit of nonprofits	16.0
A sub-unit of for-profit companies	0.7
No of founding team members	
1 person	78.7
2-5 persons	18.7
6 persons or above	2.6
Educational level	
Secondary or below	3.4
Higher diploma or associate degree	3.4
Bachelor's Degree	43.9
Master's Degree or above	49.3
Gender: percentage of males in the founding team	
25% or below	30.7
26% - 50%	5.3
51% - 75%	3.3
75% or above	60.7
Prior business experience	
Yes	67.3
No	32.7
Networks with Corporations	
Yes	80.7
No	19.3
Commercial Orientation	
Yes	75.3
No	24.7

Variable	Mean	SD
Age (years)	33.31	10.61
Usefulness scores (0-200)	117.51	26.16
Innovativeness scores (0-200)	116.37	31.57
Social Innovation Success scores (0-200)	112.68	26.77

Table 2: Correlations

	1	2	3	4	5	6	7	8	9
1 Age	1								
2 Gender	0.136	1							
3 Educational level	0.347**	0.039	1						
4 Prior business experience	0.168	0.116	0.084	1					
5 Networks with corporations	0.073	-0.048	-0.029	0.091	1				
6 Commercial orientation	0.028	0.095	0.068	0.063	-0.045	1			
7 Usefulness	0.03	0.187*	0.149	0.179*	0.28**	0.253**	1		
8 Innovativeness	0.08	0.215**	0.135	0.153	0.172*	0.245**	0.842**	1	
9 Social innovation success	0.068	0.196*	0.122	0.111	0.216**	0.268**	0.785**	0.694**	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3. Results of the Mediation Analysis

	Model 1 *Social Innovation Success*	Model 2 *Usefulness*	Model 3 *Innovativeness*	Model 4 *Social Innovation Success*
Control variables				
Age	-0.027	-0.097	-0.023	0.044
Gender (males/females)	0.177 *	0.171 *	0.191 *	0.044
Educational level	0.111	0.158 *	0.119	-0.01
Prior business experience	0.048	0.120	0.095	-0.045
Independent variables				
Networks with corporations	0.237 **	0.299 ***	0.188 *	0.014
Commercial orientation	0.253 ***	0.234 **	0.224 **	0.074
Mediating variables				
Usefulness				0.720 ***
Innovativeness				0.096
R2	0.167	0.146	0.222	0.595

N = 150; *p < 0.05, **p < 0.01, ***p < 0.001

Figure 1: Results of the Path Analysis

The mediation analysis demonstrated that although the total effect of the model was significant, the direct effects of Networks with Corporations and Commercial Orientation on Social Innovation Success became non-significant after adding in Usefulness and Innovativeness as mediators, supporting the parallel mediation model.
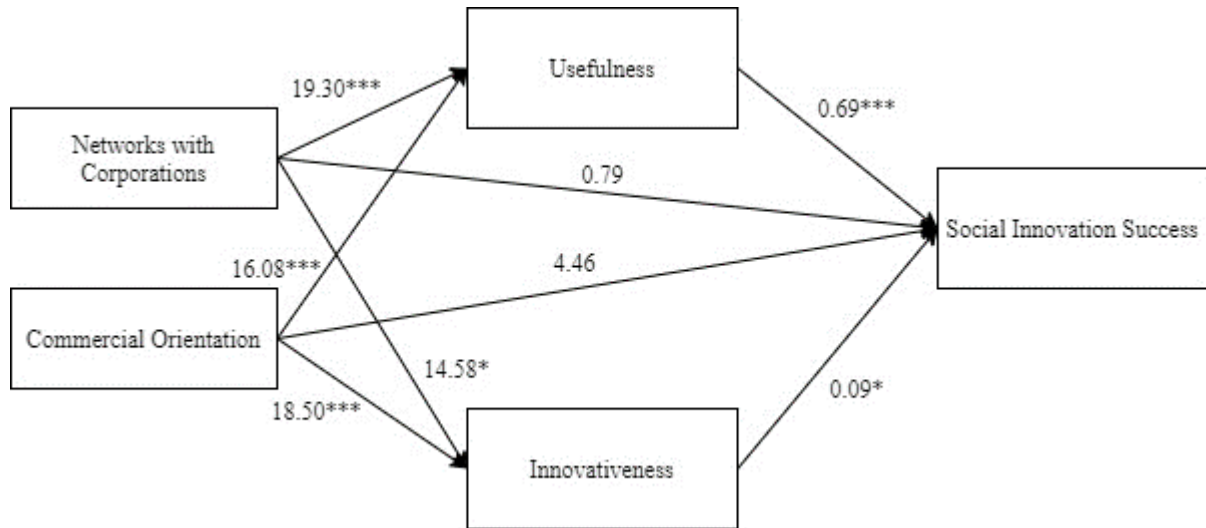
Appendix I: Background Information on the PEO Contest

Changemakers.com is an online space for launching, inspiring, discussing, mentoring, and funding ideas to solve the world's most pressing social problems using online competitions and open-source processes. "Powering Economic Opportunity: Create a World That Works" (PEO) was an OSI contest co-hosted by eBay Foundation and Ashoka Changemakers to find the world's most innovative market-based solutions that create economic opportunity and generate employment for disadvantaged populations.

The PEO contest was launched on March 29, 2011 and received a total of 871 entries from 83 countries, with more than 500 civil society organizations and 200 businesses submitting entries. Each entry included information on the objective of the social innovation solution, the societal problem, the solution, and the founders' background. During the competition submission period, the public could participate in an online review discussion with the contest participants, and the participants could modify their entries based on questions and comments arising from the online discussion.

The winning solutions were selected through a combination of public voting—via a Facebook application and the Changemakers.com platform—and expert assessment. First, a team of Ashoka staff shortlisted and nominated 15 semi-finalists. Then, the online community voted to select 10 finalists, which were then judged by an international panel of experts based on innovativeness, social impact, and sustainability to determine the final top five winners. The competition judges included distinguished scholars, funders, directors of large civil society organizations, and the president and CEO of eBay Inc. The five winners were announced on September 14, 2011, and each was awarded US$50,000 to invest in scaling up their idea and given an additional opportunity to establish a longer-term partnership with the eBay Foundation.

The 15 winners in the competition were (five that were granted funding are shown in **):

- [The Working World: Bringing Impact Finance to the World's Poor with Greater Deft and Less Debt](#) (Argentina/USA)
- [ADEL: Local Economic Development Agency](#) (Brazil)
- [Solidarium Fair Trade](#) (Brazil)**
- [Mobile JobHunt: Helping Blue-Collar Workers to Find Better Jobs](#) (China)
- [Using Crowd-Sourcing and Technology to Empower Underprivileged Talent with Fair and Flexible Work Opportunities](#) (China)
- [Tiendatek: Mobile Business Tools for Micro-Entrepreneurs](#) (Colombia)
- [Janani's IT enabled AgriService Venture (JAS)](#) (India)
- [SammaaN Interventions](#) (India)
- [Nuru Energy to Empower: Rural Energy Entrepreneurship in India and East Africa](#) (India/East Africa)**
- [Mobile Micro-Franchising in Indonesia](#) (Indonesia)**
- [Souktel Mobile Phone Job Information Service](#) (Palestine)
- [The Financially Self-Sufficient School Model: Economically Empowering Education for Low-Income Youth](#) (Paraguay)**
- [Hot Bread Kitchen: Preserving Traditions, Rising Expectations](#) (USA)
- [Nonprofit Innovation through Pay-for-Performance Funding](#) (USA)**
- [Prison Entrepreneurship Program](#) (USA)

Appendix II: A Sample of Two-Page Social Innovation Solution Vignette

NE: Providing Affordable LED Lights for the Disadvantaged

Social mission

Over 90% of the households in India and East Africa use kerosene, which is prohibitively expensive and detrimental to both the environment and respiratory health. They typically earn less than USD 2 per day, and even less in the off-season.

NE aims to provide affordable, clean, safe and functional lighting solutions to rural households that are unconnected to the electricity grid (off-grid). With seed funding from the World Bank, UNEP and UNDP, NE has developed and taken to market, individually recharged, modular LED lights and the world's first commercially-available pedal generator, NE, which together form the most effective and affordable lighting solution currently available to households at the base of pyramid (BOP).

Strategy

NE engages with rural, completely off-grid communities in both Africa and India. It introduces NELED Lights to them, which is affordable even to the poorest of the poor. NE's multi-functional, patent-pending modular, LED rechargeable lights retail for < $6 each. Each can be used as a task light or connected with others to provide ambient lighting. These "single-serve" lights allow households to purchase lighting (and recharging) just as households purchase kerosene and other FMCG products. In order to distribute the lights and create job opportunities, NE identifies, selects and trains rural village-level entrepreneurs (VLEs), each of them is provided with a start-up kit which includes a POWERCycle (the world's first commercially available pedal generator and provides the fastest recharging method for off-grid lighting), a wooden frame, marketing material and an initial micro-loan of 20-50 lights. It trains VLE about accounting, rural marketing techniques, methods to maintain sales/service records and basic technical training for breakdowns and repairs. Instead of selling their lights directly to the end consumers, which requires large inventories, slow turnover, many sales representatives and high working capital requirements, they sell directly to microfinance institutions (MFIs). The MFIs then loan sets of 20-50 lights to each VLE who resells the lights to the end consumers in her/his community. VLEs sell lights and provide recharging services to their local customer base. NE field staffs initially co-market products with VLEs and provide technical service and support to both VLEs and customers.

NE POWERCycle is the world's first commercially available pedal generator (patent pending). It provides the fastest recharging method for off-grid lighting in the market today. 20 minutes of gentle pedaling charges up to 5 NE lights simultaneously; each light lasting over 40 hours. In contrast, solar-based lanterns/recharging stations need 8-10 hours of direct sunlight and only provide up to 4 hours of light per lamp. Besides, the POWERCycle provides a compelling business opportunity for VLEs because of the opportunity to earn recurring revenue in the form of light-recharge fees. Typically having over 200 customers returning for recharging once every 10 days at USD 0.20 / recharge, NE VLEs spend about 80 min a day recharging 20 lights, earning about USD 4, a supplementary income more than what was previously earned in an entire day.

Impact

The project has been operating for 1-5 years and it has impacted more than 10,000 people. More than 10,000 people are expected to be impacted in the next three years. To date, households using the NE Light in Rwanda are reporting over 90% reduction in kerosene use for lighting and monthly savings up to $7. In India, NE has had 3 successful pilot projects with its partner BASIX and currently has products available in over 30 villages. NE lights were adopted by over 50% of randomly selected, testing households in its last pilot project in Orissa, India. Significant household kerosene consumption reductions (over 38%) were recorded across households. In Rwanda, NE has generated over USD 65,000 in revenue for the year 2011 and established 70 VLEs. Partnering with MFIs, from the revenue generated by reselling the lights and charging customers for recharges, the entrepreneurs pay back the loan over 2-3 months.

In the next three years, NE aims to expand its project across 5 countries in Africa (Rwanda, Kenya, Tanzania, Uganda, and Burundi) and 5 states in India (Uttar Pradesh, Bihar, Jharkhand, West Bengal and Orissa). It expects the East African business to break even in less than 3 years (by December 2013), with almost 20,000 VLEs and 2 million lights sold. In India, it expects to be profitable by March 2013 with 2,500 VLEs and over 160,000 lights sold.

Resources and networks

NE in India is currently supported by the personal investments of its founders as well as two awards it has won, namely Wantrapreneur India Award 2010 and the Atmosfair India Renewable Energy Innovation Award. Further, its East Africa operations have received USD 2 million in commercial capital from BAML in a one-of-a-kind options premium payment for the future purchase of carbon credits generated by NE in East Africa. In addition to the financial investment, BAML has earmarked funds through the Calvert Foundation (which funds a number of MFIs in our working areas) specifically for NE Energy loans.

With the MFI providing most of the capital, NE can focus its resources on rapidly setting up more field offices. The beneficial relationship is mutual; MFIs can increase their client base with a proven business and significantly reduce risk by funding income-generating assets. In India, NE is partnering with BASIX, that works in over 16 states across the country with millions of customers. It has run pilot projects with BASIX since December 2009 in 3 districts and 2 states in India and is currently negotiating a national-level project. In Rwanda, it partners with Urwega Opportunity Bank (UOB). UOB was named "Best MFI in Rwanda" in the 2004 "Year of Microfinance". They are in advanced negotiations with Kiva.org, Calvert Foundation, and Equity Bank, to be its microfinance partners in other countries. NE also partners with NGOs to set up VLEs in jointly-identified off-grid communities. In India, it is conducting feasibility studies for projects with Srijan and Aide et Action in Rajasthan and Uttar Pradesh respectively while in Rwanda it has partnered with UNDP Millennium Villages to set up 20 VLEs.

Appendix III: Measurement Items for Quantitative Content Analysis

Variables	Measures
DEPENDENT VARIABLE	
Social Innovation Success	*Impact (Social and Financial)* The social innovation (described above) generates substantial social impact. *(0-100 scores)* The social innovation (described above) is financially sustainable. *(0-100 scores)*
INDEPENDENT VARIABLES	
Networks with Corporations	The social innovation (described above) developed networks with for-profit corporations. *(1= Yes, 0=No)*
Commercial Orientation	The social innovation (described above) adopted a revenue model to generate income. *(1= Yes, 0=No)*
MEDIATING VARIABLE	
Usefulness	The social innovation solution (described above) enhances the social innovator's effectiveness in achieving his or her goals. *(0-100 scores)* The social innovation solution (described above) makes it easier for the social innovator in performing his or her job. *(0-100 scores)*
Innovativeness	The social innovation solution (described above) incorporates a substantially different solution relative to previous solutions in the category. *(0-100 scores)* The social innovation solution (described above) provides substantially higher user benefits relative to the previous solutions in the category. *(0-100 scores)*
Control Variables	
Age	What is the average age of the founding team members?
Gender	What is the male-female ratio in the founding team?
Educational Level	What is the average educational level of the founding team members?
Prior Business Experience	Did the founding team members have prior working experience in the business sector?

Appendix IV: Bootstrapping Results and Findings

Estimation methods	Maximum likelihood output				Percentile bootstrap output			Bias-corrected		
Paths	Estimate	S.E.	C.R.	p	Mean	S.E.	Bias	Lower	Upper	p
NetworksCorporations --> Usefulness	0.291	4.989	3.868	***	0.291	0.073	0	0.138	0.425	0.001
NetworksCorporations --> Innovativeness	0.183	6.214	2.347	0.019	0.184	0.077	0.001	0.024	0.33	0.025
NetworksCorporations --> SISuccess	0.012	3.616	0.219	0.827	0.013	0.05	0.001	-0.085	0.11	0.804
CommercialOrientation --> Usefulness	0.265	4.57	3.519	***	0.266	0.071	0.001	0.112	0.394	0.001
CommercialOrientation --> Innovativeness	0.253	5.693	3.25	0.001	0.255	0.077	0.002	0.094	0.399	0.003
CommercialOrientation --> SISuccess	0.076	3.336	1.336	0.181	0.071	0.058	-0.005	-0.034	0.193	0.181
Usefulness --> SISuccess	0.689	0.056	12.382	***	0.704	0.087	-0.008	0.497	0.843	0
Innovativeness --> SISuccess	0.113	0.045	2.025	0.43	0.115	0.118	0.003	-0.105	0.356	0.332

Total effects of variables on SISuccess	Through Usefulness	Through Innovativeness
Networks with Corporations		
Total effect	0.228*	0.228*
Direct effect	0.005	0.109
Indirect effect	**0.223***	**0.118***
Commercial Orientation		
Total effect	0.277*	0.277*
Direct effect	0.075	0.114
Indirect effect	**0.203***	**0.163***

Note: We used bootstrapping for further analysis (Mallinckrodt et al., 2006). Following Preacher and Hayes (2008), we performed 5,000 resamples from our data for bootstrap analysis, and adopted both percentile and bias-corrected bootstrap confidence (95% confidence interval) to test the indirect, direct, and total effect of the independent variables. As the Appendix IV shows, the difference between the estimate of maximum likelihood and that of the percentile bootstrap method is small, suggesting that the significance tests of the maximum likelihood and percentile bootstrap are consistent. The indirect effects of Networks with Corporations on Social Innovation Success through Usefulness (b = 0.223, $p < 0.001$) and Innovativeness (b = 0.118, $p < 0.05$) were both significant. Similarly, Usefulness (b = 0.203, $p < 0.001$) and Innovativeness (b = 0.163, $p < 0.05$) mediated the relationship between Commercial Orientation and Social Innovation Success. These findings lend additional support to the insight that Usefulness and Innovativeness mediate the relationships between Networks with Corporations and Commercial Orientation (independent variables) and Social Innovation Success (dependent variable).