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edited by

*Arabella Mocciaro Li Destri, Marta Ugolini,
Angeloantonio Russo and Savino Santovito*

Which are worthy? Achieving legitimation for innovative projects in the eyes of knowledgeable audiences[♦]

FRANCESCA CAPO^{*} LORENA MARIA D'AGOSTINO^{*} SALVATORE TORRISI[▲]

Abstract

Legitimacy is a key issue for startup projects, helping innovative ideas and potential ventures to achieve social and financial support from external stakeholders. When participating to competitive contests, startup projects need to achieve legitimacy and be considered appropriate entities by a jury of experts, who represent a knowledgeable and competent audience. In this study, we aim at investigating which elements characterizing startup projects are correlated with higher probability for the projects to be legitimated by knowledgeable audiences. We explore this issue by building on a dataset of 124 projects submitted to the BiUnicrowd contest (2018-2021) organized by the University of Milano-Bicocca. We discuss our results and suggest contributions to literature on category dynamics and entrepreneurship, also offering some insights in terms of implications for managers.

Framing of the research. Innovative, early stage projects, often struggle to be considered legitimate (Aldrich and Fiol, 1994). Many projects, although incorporating novel ideas or solutions to social issues (De Silva et al., 2021) may not be perceived as appropriate in the eyes of stakeholder audiences, thus failing to achieve legitimacy (Suchman, 1995) and gather the financial and social support needed to develop and grow. This legitimacy may be particularly important in the case of innovative contests (Boudreau et al., 2011), during which participating projects need to persuade knowledgeable, expert audiences not only that their ideas are novel enough, but also that their goals and overall activities are appropriate, worthy to be transformed into new ventures. Indeed, in the case of contests, expert audiences evaluate various dimensions of projects, and thus for projects' proponents (e.g., potential entrepreneurs) it is important to understand which elements and signals they can leverage to persuade these audiences of their value and achieve legitimacy. Hence we ask: what are the elements that are correlated to startup projects gaining legitimacy in the eyes of knowledgeable audiences? In the following sections, we investigate this question by looking at BiUniCrowd, a contest for innovative projects created by the University of Milano-Bicocca.

Purpose of the paper. Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995: 574) and represent a key factor for startup projects and potential ventures (Capo and Di Pietro, 2023; Fisher et al., 2016). Scholars have pointed out how nascent and young ventures may face a "liability of newness", showing - among other weaknesses - low levels of legitimacy (Singh et al., 1986), which may prevent them to attract the needed support (both in terms of financial resources and social capital) to survive and grow. New ventures striving to be noticed and recognized as a participant in a given market has to attract the attention of stakeholder audiences such as private investors, prestigious partners, intermediaries, and media (Petkova et al. 2013). Legitimacy also entails being evaluated on the basis of specific elements (Aldrich and Fiol, 1994; Suchman, 1995). Affiliation with high-status actors such as venture capital investors provide legitimacy as those actors are supposed to have the ability to assess the quality of a new venture. Participation in competitive contexts such as business plan competitions may also help startup projects gain legitimacy as "victories in contests legitimate organizations and validate their reputation because of the taken for granted axiom that winners are 'better' than losers" (Rao, 1994: 32). Indeed, by emerging as winners in contests, startup projects signal their future value to potential customers, partners, and investors and justify their existence as reliable entities in the entrepreneurial environment (Rao, 1994). However, to win competitive contests, startup projects need to persuade an expert audience (i.e., a designated jury) of their value and

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^{*} Assistant Professor of Management- University of Milano Bicocca

e-mail: francesca.capo@unimib.it

^{*} Researcher of Management - University of Milano Bicocca

e-mail: lorena.dagostino@unimib.it

[▲] Full Professor of Management University of Milano Bicocca

e-mail: salvatore.torrise@unimib.it

appropriateness, which will then provide validity clues to future stakeholders (Wang et al., 2016). Studies have argued that, when evaluating and providing legitimation to certain actors' categories, expert audiences employ specific mechanisms particularly in view of the knowledge and understanding they have of that category (Vergne and Wry, 2014). While the literature has posited that experts take into account several elements when undertaking decisions (Petkova et al., 2013; Eisenhardt, 1989), it has overlooked which are the elements they account as most important when evaluate candidates (i.e., deciding who is going to win a contest). In this sense, we build on crowdfunding and entrepreneurship literature (Belleflamme et al., 2014), and propose that two elements can play a key role in shaping expert audience's evaluations. First, studies focusing on crowdfunding campaigns have argued how team size can have a positive effect on their success (Oo et al., 2019), due to social network effects (Mollick, 2014) and human capital benefits that may accrue as the number of team members increases. This is because, on the one side, each individual can bring on her own connections and contacts (i.e., her own social network) as prospective investors and funders of the campaign; thus, as the team size grows, a campaign's chances to reach the target goal and be successful also increase. On the other side, scholars suggest that larger teams may also provide ventures with higher human capital (Ucbasaran et al., 2003), which in turn may allow a firm to leverage diverse competences, and skills as well as access to social and financial resources (Becker, 1975), resulting in increased likelihood of success when appealing to potential investors and backers. The potential to build on a wide social network and the diversity and richness of human capital incorporated may render a startup project viable and appropriate in the eyes of expert audiences. This suggests that team size may represent an element taken into account in legitimation processes by expert audiences. As such, we formulate the following hypothesis:

Hypothesis 1. The number of members in a team is positively correlated with the probability of a startup project being considered legitimate by an expert audience.

Second, entrepreneurial studies have focused on the importance of signals in persuading investors to finance a venture (Ahlers et al., 2015). Scholars agree that, among others, the level of education can work as an effective signal, portraying the venture's founders as competent and knowledgeable, and helping reduce the uncertainty investors may have regarding the entrepreneurial project feasibility (Hsu, 2007; Levie and Gimmon, 2008). Like investors, also expert audiences (such as members of a jury during a competitive contest) rely on signals to evaluate the worthiness and appropriability of a project. In this sense, conveying the image of competence by means of high levels of education possessed by the principal team member may increase project's chances to be considered legitimate in the eyes of an expert audience. Hence, we formulate the following hypothesis:

Hypothesis 2. The education level of the principal team member is positively correlated with the probability of a startup project being considered legitimate by an expert audience.

Methodology. The dataset includes 124 projects submitted to the first four calls of BiUnicrowd (2018-2021), a contest based on a program of alternative finance organized by the University of Milano-Bicocca in collaboration with the Italian crowdfunding platform "Produzione dal basso". Students (both former and current) and employees (e.g., researchers, professors, administrative staff) of the university could submit their proposal to a jury of experts. The winners of the contest (i.e., the selected projects) received specific training from the university and from the crowdfunding platform experts, and later on, participated in a crowdfunding campaign. These campaigns were based on the "all-or-nothing" system, for which the collected funds are transferred to the project if the pre-set target is met. A peculiarity of BiUnicrowd is that the university or other associated partners (e.g. Fondazione Comunità Milano, Corepla, and Sorgenia) commit to co-finance the project if at least 50% of the target is met. Therefore, the benefits of participating in the BiUnicrowd program are related to access to funds, learning opportunities (e.g., in marketing and communication), visibility, and legitimacy. The first two calls of the contest received more projects (41 and 47, respectively), which may be related to the novelty of the program and then some proposals were outside the scope of the calls or of a too low quality; the third call received 24 projects, and the fourth 12. The number of winning projects that eventually did the campaign was 4 and 5 for each call. For each of the 124 projects, we have access to the biography of the proponents - i.e., the principal investigator (PI and - if any - of the other team members), and a description of the projects (including business plan and budget). From this information, we created a set of variables correlated to the probability of being selected by the commission of experts and eventually participating to the crowdfunding campaign. We estimate a probit model, where the dependent variable "winning" is equal to 1 if the project is selected by the experts, and 0 otherwise. All variables are listed in Table 1, with descriptions and some statistics. We clustered errors by each call.

Tab. 1: Variables and description

Variable	Description	Mean	SD	Min	Max
Winning	Dummy (1/0): 1 if the project has been selected by the experts	0.15	0.35	0	1
Team size	Number of persons in the application	3.63	2.38	1	12
Team female shares	Share of females in the team	45.27	39.24	0	100
Team homophilia	Dummy (1/0): 1 if team members are either all females or all males	0.53	0.50	0	1
Team 50% females	Dummy (1/0): 1 if at least 50% of team members are females	0.49	0.50	0	1
Team n. females	Total number of females in the team	1.72	1.81	0	11
PI female	Dummy (1/0): 1 if PI is female	0.42	0.50	0	1
PI high school or bachelor	Dummy (1/0): 1 if the education level of the PI is high school or bachelor's degree	0.24	0.43	0	1
PI master	Dummy (1/0): 1 if the education level of the PI is a master's degree	0.48	0.50	0	1
PI PhD	Dummy (1/0): 1 if the education level of the PI is PhD	0.27	0.45	0	1
PI STEM edu	Dummy (1/0): 1 if the education level is in science, technology, engineering, or mathematics (STEM) fields	0.44	0.50	0	1
Mission digital & innovation	Dummy (1/0): 1 if the mission is related to digital and innovation	0.39	0.49	0	1
Mission environmental	Dummy (1/0): 1 if the mission is related to environmental issues	0.29	0.46	0	1
Mission social & health	Dummy (1/0): 1 if the mission is related to social and/or health issues	0.32	0.47	0	1

Results. Our preliminary exploration of the factors related to the probability of being selected by an expert audience is mostly focused on the characteristics of the PI, and on the team members (if any). Table 2 shows the probit estimations of seven model specifications.

Across models 1-7, the strongest and more consistent result is about the number of team members, which is positive and statistically significant in all models. Our hypothesis 1 is confirmed. This result is in line with the literature on crowdfunding success (e.g. D'Agostino et al., 2022), suggesting that larger teams are considered a good signal of the potential success of the campaign and subsequent development of the project. Larger teams embody a higher amount of human capital, can benefit from a greater division of labor and the presence of heterogeneous and complementary competencies, and access to a larger network that may support the campaign. In model 7, we also test the non-linearity of team size; we expect that too many members may be detrimental to success because of repetition and overlapping of competencies, but the squared term is not statistically significant probably because most teams in our sample have a limited number of participants.

In models 2-5, we investigate the composition of the team in terms of gender; this exploration is based on the observations that of the 18 projects selected, 11 (61%) are led by females, and these teams are more likely to have more women on board (i.e., 6 of these 11 project teams have at least $\frac{3}{4}$ of females). This overrepresentation of women in comparison to other contexts (e.g., Johnson et al. 2018) may be explained with two complementary motives. First, the University of Milano-Bicocca is more specialized in fields in which traditionally women are more represented (e.g., social sciences). Second, reward crowdfunding is usually linked to projects with strong social dimensions, and the calls of BiUnicrowd are oriented towards social or environmental issues, in which women tend to be more committed; for example, among the partners that have co-financed projects, there is Fondazione Comunità di Milano (which support projects with a social impact) and Corepla, a national consortium for plastic packaging recycling. However, none of the variables related to gender is statistically significant, not even PI being a female. The pairwise correlations between female PI and female composition of teams ("Team female share" and "Team 50% females") are above 0.8 and 0.7, respectively; however, the VIF does not raise concerns.

In general, none of the variables related to PI characteristics seem relevant, except marginally in models 3 and 7, where "PI PhD" is positively correlated to the probability of being selected for a campaign at a low level of significance ($p < 0.10$). The significance of "PI PhD" becomes stronger ($p < 0.05$) in model 6 after the exclusion of "PI STEM edu.", suggesting that having a PI with a PhD is a strong signal of quality, but part of this effect is mitigated when the PI has an education in STEM fields. We also tried the interactions between "PI PhD" and "PI STEM edu", and none of the three coefficients are statistically significant at the conventional levels (results not shown here). Therefore, we find support for hypothesis 2 on the importance of PhD for PI, although further investigation is required to check the robustness of this result.

Tab. 2: Econometric results: probit

	(1) Winning	(2) Winning	(3) Winning	(4) Winning	(5) Winning	(6) Winning	(7) Winning
Team size	0.143*** (0.0404)	0.133*** (0.0292)	0.147*** (0.0395)	0.134*** (0.0250)	0.212*** (0.0792)	0.139*** (0.0507)	0.704** (0.340)
Team female shares		-0.00758 (0.00713)					
Team homophilia			0.0483 (0.218)				
Team 50% females				-0.398 (0.554)			
Team n. females					-0.135 (0.123)		
Team size ²							-0.0497 (0.0308)
PI female	0.511 (0.489)	0.907 (0.848)	0.505 (0.493)	0.785 (0.851)	0.769 (0.689)	0.474 (0.518)	0.623 (0.539)
PI master	0.603 (0.517)	0.607 (0.513)	0.602 (0.515)	0.594 (0.479)	0.590 (0.504)	0.599 (0.506)	0.702 (0.538)
PI PhD	0.811 (0.507)	0.899 (0.594)	0.815* (0.491)	0.834 (0.519)	0.859 (0.557)	0.899** (0.450)	0.926* (0.483)
PI STEM edu.	0.188 (0.396)	0.130 (0.420)	0.193 (0.392)	0.198 (0.385)	0.151 (0.396)		0.108 (0.386)
Mission environmental	0.104 (0.409)	0.165 (0.385)	0.110 (0.411)	0.0872 (0.429)	0.106 (0.429)	0.157 (0.364)	-0.0333 (0.374)
Mission social & health	-0.0883 (0.407)	0.0142 (0.350)	-0.0809 (0.441)	-0.00559 (0.378)	0.00360 (0.339)	-0.0804 (0.404)	-0.191 (0.393)
Constant	-2.596*** (0.637)	-2.420*** (0.439)	-2.640*** (0.475)	-2.507*** (0.527)	-2.752*** (0.720)	-2.516*** (0.643)	-3.887*** (0.651)
Observations	124	124	124	124	124	124	124
Pseudo R-squared	0.171	0.182	0.172	0.177	0.180	0.169	0.216

Clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Research limitations. Our research is not without limitations. Firstly, BiUnicrowd is a very recent program, and this implies that the dataset suffers of different biases: few projects in total, large variance in the quality of projects for each call, and high variability across the calls because of different partners and experts involved. Secondly, we mainly codified information from CVs, whose format and quality of the information provided sometimes are inconsistent across calls (especially for team members), which further limit the information we can use across the calls. Finally, the generality of our results is limited by the peculiar context, which is the crowdfunding activity experienced by a specific public university.

Managerial implications. Our findings offer some implications for practice. First, it suggests how important is to know 'who you are talking to' (i.e., the audience you are targeting) and incorporate in a project or venture that will be evaluated by that target audience the elements that this latter will considered valuable and appropriate. As marketers do when segmenting their customer base and deciding which segment to target, startup projects or new ventures need to channel their initial resources, rather than towards persuading as much people as possible, towards convincing one specific audience. Such a strategy (i.e., target one audience and prepare for it) may enable new projects or ventures to employ limited amount of resources, only the amount needed to reach that target, and proceed incrementally in steps by allocating other resources towards the next target (and audience) that need to be persuaded to acquire support and legitimacy (which may be financial investors or backers in case of crowdfunding campaigns).

Second, our findings highlight the importance of team size and level of education as dimensions that affect expert audiences, whose evaluation may eventually provide a strong legitimization signal to other less expert audiences such as financial contributors to a reward crowdfunding campaign. Project teams will probably benefit from a clear awareness of the importance of these factors. However, data limitations prevent a deeper understanding of team composition which we aim to investigate in our future research. Moreover, the analysis of projects selected into crowdfunding campaigns could help to understand to what extent expert evaluation predicts the actual success of a project during the crowdfunding campaign. Comparing the selection outcome with the performance of selected projects in the campaigns may provide useful information for the organization and assessment of the selection process.

Originality of the paper. This working paper contributes to two streams of literature. The first one is related to category dynamics (David et al., 2023; Zuckerman, 1999) and particularly the issue of how actors can gain legitimacy when appealing to knowledgeable audiences. Indeed experts, in view of their competence and information about the entity they are evaluating, may take into account specific elements (Vergne and Wry, 2014) different from the factors that general audiences (such as crowdfunding investors, the public, or media) take into account when conferring (or not) the label of worthiness to an actor. The second stream of literature is related to entrepreneurial scouting, which has mainly investigated how venture capitalists select startups in which to invest and to a less extent has addressed the role of experts without financial interests in early-stage projects. The main contribution of our work to this latter literature is the specificity of the setting - a contest that allows a first-stage selection of projects that will participate in a crowdfunding campaign at a later stage. The presence of the University as a promoter of reward crowdfunding

provides a rich pool of potential participants and projects. At the same time, the promotion and financial backing of a crowdfunding campaign by an academic institution probably play a legitimating role.

Keywords: legitimacy; entrepreneurship; competitive contests

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