

DOI: <https://doi.org/10.7341/20262211>
JEL Codes: M13, M12, L26, J24

Employer attractiveness in start-ups: Evidence for the instrumental-symbolic framework and the role of protean career orientation

Theresa U. Zimmer¹ , Cornelius J. König² 
Valentin Hemm³ , Nida ul H. Bajwa⁴ 

Abstract

PURPOSE: Employer branding is increasingly critical for start-ups seeking to attract qualified talent under severe resource constraints. While the instrumental-symbolic framework of employer attractiveness is well established in large organizational contexts, its applicability to start-ups remains underexplored. This study examines the transferability of this framework to start-up contexts and investigates whether protean career orientation (PCO) influences perceptions of employer attractiveness. **METHODOLOGY:** The study employs a scenario-based experimental design with a sample of 551 participants recruited via Prolific. Participants were exposed to fictitious start-up websites in which instrumental attributes (job security and compensation) and symbolic attributes (innovativeness and meaningfulness) were systematically manipulated. Employer attractiveness served as the dependent variable. Hierarchical linear modeling was used to analyze the main and interaction effects of employer attributes and PCO. **FINDINGS:** The results demonstrate that both instrumental and symbolic attributes significantly increase perceived employer attractiveness in start-up contexts. Protean career orientation was positively associated with employer attractiveness, suggesting that individuals with higher PCO generally evaluate start-ups more favorably as potential employers. However, PCO did not moderate the effects of instrumental or symbolic attributes on employer attractiveness. **IMPLICATIONS:** The findings support the transferability of the instrumental-symbolic framework to start-up employer branding by highlighting the continued importance of instrumental attributes alongside symbolic signals. The results further suggest that PCO functions as an independent predictor rather than a boundary condition. Practically, start-ups should emphasize credible instrumental employment conditions while complementing them with symbolic cues to enhance attractiveness among diverse career-oriented individuals. **ORIGINALITY AND VALUE:** This study extends employer branding research by empirically testing the instrumental-symbolic framework in a start-up context and by integrating PCO as an individual-level factor. It contributes to the literature by clarifying how career orientations shape employer evaluations in emerging and resource-constrained organizational settings. **Keywords:** employer branding, employer attractiveness, start-ups, instrumental attributes, symbolic attributes, job security, compensation, innovativeness, meaningful work, meaningfulness, organizational image, recruitment, applicant attraction, job pursuit intentions, job search behavior, career orientation, hierarchical linear modeling, health-tech start-ups.

¹ Theresa U. Zimmer, Dr., Universität des Saarlandes, Campus A1.3 66123 Saarbrücken, Germany, e-mail: theresa.zimmer@uni-saarland.de (ORCID: <https://orcid.org/0009-0005-2504-9833>).

² Cornelius J. König, Prof. Dr., Universität des Saarlandes, Campus A1.3 66123, Saarbrücken, Germany (ORCID: <https://orcid.org/0000-0003-0477-8293>).

³ Valentin Hemm, B.Sc., Universität des Saarlandes, Campus A1.3 66123 Saarbrücken, Germany (ORCID: <https://orcid.org/0009-0001-6619-3699>).

⁴ Nida ul H. Bajwa, Dr., Universität des Saarlandes, Campus A1.3 66123 Saarbrücken, Germany (ORCID: <https://orcid.org/0000-0001-9943-8042>).

INTRODUCTION

Start-ups play a vital role in the economy by creating numerous job opportunities (Acs, 2006; Decker et al., 2014). However, from the perspective of job seekers, there is substantial uncertainty regarding the attractiveness of a job at a start-up. On the one hand, they may seem attractive due to the autonomy they typically offer in work and the opportunity for experimentation (Moser et al., 2017; Roach & Sauermann, 2024). On the other hand, they are also marked by the limitations of being new, small in scale, and often lacking the resources to offer benefits comparable to those of established companies (Cardon & Stevens, 2004). To overcome these constraints, start-ups must develop strategies for effectively using limited resources to attract initial employees. This can be achieved through thoughtful employer branding that highlights the employer's attractive attributes (Backhaus & Tikoo, 2004; Navis & Glynn, 2011).

Prior research has examined employer attractiveness by investigating the influence of various types of attributes. One of the most prominent approaches is the instrumental-symbolic framework, which classifies these attributes into instrumental and symbolic categories (Lievens & Highhouse, 2003). Instrumental attributes offer tangible benefits to job seekers, whereas symbolic attributes reflect the organization's personality. Past research also shows that instrumental attributes underpin an organization's attractiveness, whereas symbolic attributes enhance it by highlighting differences from other organizations (Lievens et al., 2007; Lievens & Highhouse, 2003; Rai, 2019). However, the influence of these attributes may differ in start-ups, given their fundamental differences from established firms. For example, start-ups experience rapid and frequent changes in team composition (Ucbasaran et al., 2003). These circumstances might reduce the impact of instrumental attributes while increasing the importance of symbolic attributes. Moreover, start-ups may attract a different type of employee than established companies (Sauermann, 2018; Volkmer et al., 2024), as careers are typically less structured: Early-stage start-ups are for instance small, employees assume substantial responsibility for the business's success (Roach & Sauermann, 2015; Tumasjan et al., 2011), and advancement depends less on formal career paths than on proactive behavior and increased involvement in the venture (e.g., Gerber et al., 2009; Briscoe et al., 2006; Hall, 1976; Hall et al., 2018). Although research exists on both the attractiveness of start-ups (e.g., Moser et al. 2017) and the characteristics of start-up employees (e.g., Sauermann, 2018), a gap remains in integrating these areas to investigate the interplay between start-up-specific attractiveness attributes and career orientations of job candidates considering employment in start-ups. Therefore, this study first aims to investigate differences in the contribution of instrumental and symbolic attributes to the attractiveness of start-ups. Symbolic attributes (e.g., innovativeness and meaningfulness), are expected to have a stronger impact on start-up employer attractiveness compared to instrumental attributes (e.g., job security and compensation). Second, this study aims to examine whether high levels of protean career orientation (PCO) influence the relationship between symbolic attributes and attractiveness, hypothesizing that higher levels of PCO will strengthen this relationship. Furthermore, this study seeks to replicate past research (Van Hooft et al., 2021) demonstrating a positive connection between employer attractiveness and subsequent job search behavior. Specifically, it examines whether greater employer attractiveness is associated with a stronger intention to seek further information about the respective start-up.

This paper is structured as follows. First, the relevant theoretical and empirical foundations are reviewed, organized around four thematic areas: employer attractiveness in start-up contexts; instrumental and symbolic employer attributes in start-ups; applicants' career orientations; and perspectives extending beyond employer attractiveness. The subsequent section describes the research methodology. The empirical results are then presented and discussed, beginning with an interpretation of the findings. This is followed by a synthesis of the key results, a discussion of the study's limitations, directions for future research, and practical implications. The paper concludes with a final summary of the main contributions.

LITERATURE REVIEW

Employer attractiveness of start-ups

During the hiring process for new ventures, entrepreneurs are typically confronted with the start-up's smallness, newness, and resource constraints (Cardon & Stevens, 2004). First, in the early stages, start-ups are typically small-scale. This leads to job seekers lacking familiarity with organizational and job characteristics when considering potential employers (Aldrich & Auster, 1986). Additionally, their newness suggests that organizational characteristics may not yet be established, thereby increasing uncertainty about the company as an employer and the work environment. Furthermore, entrepreneurs often

contend with resource scarcity, particularly time and capital (Cardon & Stevens, 2004; Williamson et al., 2002). As a result, start-ups might struggle to use traditional methods, such as advertising, job fairs, or walk-ins (Zottoli & Wanous, 2000) to raise awareness as a potential employer. These obstacles significantly impact the initial phase of employment: attracting potential candidates. If a sufficient applicant pool cannot be generated, this limits later recruitment stages, as there may be too few candidates with the right competencies (Turban & Cable, 2003). Therefore, entrepreneurs need to carefully strategize how they present themselves to create a unique employer value proposition that attracts employees.

The backbone of every employer value proposition is good employer branding (Moser et al., 2021). Employer branding as an attraction strategy entails that job applicants evaluate a potential employer's attractiveness by considering various signals it conveys, which collectively form the employer's image (Theurer et al., 2018). Furthermore, employers who align their branding strategy with the desired characteristics of potential employees gain an advantage in attracting them (Kristof, 1996). Hence, entrepreneurs should, on the one hand, consider their distinctive qualities as employers and, on the other hand, carefully consider the type of employees required (Maheshwari et al., 2017; Moser et al., 2021; Navis & Glynn, 2011).

Lievens and Highhouse's (2003) employer attractiveness framework - one of the most widely used models in employer branding (e.g., Rai, 2019; Van Hoye et al., 2013) - distinguishes between instrumental and symbolic employer attributes across organizational contexts. These attributes represent organizational characteristics and shape a specific employer image when communicated to potential job candidates (Lievens et al., 2016). Whereas instrumental attributes include tangible benefits for the job seeker, such as compensation or learning opportunities, symbolic attributes represent more intangible benefits. They are akin to the organization's personality, such as innovativeness or prestige. Hence, it is often the symbolic attributes that signify the alignment between the person and the organization (Lievens & Highhouse, 2003).

Instrumental and symbolic attributes serve different purposes for prospective employees. Whereas instrumental attributes are more consumption-related, symbolic attributes target social needs, such as self-enhancement or a sense of belongingness (Park et al., 1986). Traditional symbolic attributes, as identified in Lievens et al.'s (2003) research on banks, include sincerity (e.g., honest employers), competence (e.g., intelligent employers), prestige (e.g., respected employers), robustness (e.g., strong employers), and innovativeness (e.g., exciting employers). Ample evidence supports these symbolic attributes across various job sectors (Lievens et al., 2007; Rai, 2019) and different cultures (e.g., Van Hoye et al., 2013). Despite its strong explanatory power across organizational contexts, it remains unclear whether and how this framework can be transferred to the start-up context.

Instrumental and symbolic attributes in start-ups

Applying these attractiveness attributes to the context of start-ups, it becomes apparent that they differ from those found in established companies (Barber et al., 1999; Moser et al., 2017; Roach & Sauermann, 2024; Tumasjan et al., 2011). First, start-ups are still in the organizational formation phase. Consequently, there is uncertainty about the types of instrumental attributes they can offer at the critical early stages, so that some attributes may simply not be available yet. For instance, cultivating a positive and successful team climate requires considerable time for development (Price et al., 2002), or delegating tasks to employees can prove exceedingly challenging for many entrepreneurs due to their strong psychological ownership of the business (Zhu et al., 2024). As a result, it remains unclear whether flat hierarchies truly exist in the early stages or whether the entrepreneur still bears the majority of responsibilities. Second, certain instrumental attributes, such as job security or high salaries, are highly valued but are more commonly found in established companies (Lievens & Highhouse, 2003). Therefore, a deficiency in these attributes could result in a reduced or constantly changing overall influence of instrumental attributes, and crafting an employer branding strategy that emphasizes symbolic attributes may prove more advantageous for start-ups.

Similar to instrumental attributes, start-ups may offer specific symbolic attributes compared to established companies. For example, innovativeness as an attribute may convey novelty and originality, particularly in the nascent stages of start-ups to investors and/or customers (Mason & Stark, 2004; Rosenbusch et al., 2011; Shepherd & Zacharakis, 2003). Furthermore, this innovativeness is fueled by flexibility, as start-ups operate with less rigid routines, enabling them to adapt to their environment swiftly. In addition, they are often receptive to new technologies, which is also linked to higher innovation and success (Hyytinen et al., 2015; Lumpkin & Dess, 1996; Rosenbusch et al., 2011). Consequently, although not all start-ups embody high levels of innovation, many still might project a sense of symbolic innovation as employers, setting themselves apart from similar competitors. Meaningfulness seems to be another key attribute of the start-up work environment, as start-ups typically involve task variety, task identity, and task significance, which are central drivers of

meaningful work in Hackman and Oldham's (1976) job characteristics model. These aspects are reflected in the changing conditions of start-ups, small teams with holistic responsibilities, and the promotion of innovative products with significant societal impact (Moser et al., 2017; Steger et al., 2012; Tumasjan et al., 2011; Wrzesniewski & Dutton, 2001). Recent research extends this view by suggesting that meaningfulness in start-ups arises not only from the work environment but, more importantly, from the existential integration of the individual with the work itself. Accordingly, start-ups are associated with professional, psychological, and societal dimensions of meaningfulness (Dirik & Özdoğan, 2025).

Given differences in employer attractiveness between start-ups and established companies, symbolic attributes should exert a stronger influence on attractiveness in start-ups than instrumental attributes. Start-ups often seem to struggle to provide consistent instrumental benefits because they lack resources, are small and new (Cardon & Stevens, 2004), and face rapidly changing conditions in their early stages of growth (DeSantola & Gulati, 2017), whereas established companies can typically offer diverse instrumental attributes (Rai, 2019; Van Hove et al., 2013). This may also be one of the reasons why entrepreneurs prioritize an employee's alignment with the overall organization over merely meeting job requirements (Heneman et al., 2000), as symbolic attributes reflect the organization's personality more than instrumental attributes do (Lievens & Slaughter, 2016). At the same time, entrepreneurs were found to typically gain advantages from utilizing symbols to build their corporate identity, which extends to enhancing employer attractiveness through symbolic attributes (Clarke, 2011; Zott & Huy, 2007). Moreover, joiners of start-ups simply do not seem value instrumental attributes as much as employees in established companies (Roach & Sauermaun, 2024). For start-up joiners, symbolic attributes may play a relatively larger role. Lastly, start-ups need to use an employer branding strategy to distinguish themselves from other organizations (Moser et al., 2017; Navis & Glynn, 2011), and symbolic attributes tend to be more effective than instrumental benefits in distinguishing one company from another (Lievens & Highhouse, 2003). Therefore, we hypothesize:

Hypothesis 1. Symbolic attributes (i.e., innovativeness and meaningfulness) exert a stronger influence on employer attractiveness of start-ups compared to instrumental attributes (i.e., job security and compensation).

Career orientation of applicants

Preferences that distinguish employees in start-ups from those in established companies may also lie in their varying career orientations. Whereas traditional career orientations typically entail an organization's responsibility for an employee's career development, with well-defined hierarchical career paths within a company (Gerber et al., 2009), recent trends show a rise in new career orientations, where more individuals are prioritizing professional growth and job mobility over physical capital (Hall et al., 2018; Markman et al., 2002). One of these new career orientations, the "protean career" is described as a career "in which the person, not the organization, is in charge, the core values are freedom and growth, and the main success criteria are subjective (psychological success) vs. objective (position, salary)" (Hall, 2004, p.4). This career orientation thus refers to individuals who strive to maintain autonomy over their career trajectory and ensure it resonates with their personal values (Li et al., 2022). High-PCO individuals are also anticipated to navigate uncertain and evolving environments adeptly (Briscoe et al., 2006; Hall et al., 2018; Li et al., 2022). Moreover, they are typically open-minded and proactive in seeking opportunities for self-improvement, leading to greater knowledge of their strengths and weaknesses (Li et al., 2022). Taken together, high-PCO individuals approach their career choices in a more self-directed and values-oriented manner.

The behaviors and characteristics observed in individuals with high PCO align well with the dynamics observed in the early stages of start-up environments (Roach & Sauermaun, 2015; Sauermaun, 2018; Volkmer et al., 2024). For instance, start-ups provide ample opportunities for autonomous work and taking on responsibility for comprehensive tasks (Tumasjan et al., 2011). Furthermore, alignment with values can be assessed through the symbolic attributes that start-ups promote. These symbolic attributes may be more noticeable than instrumental ones and can help individuals determine their fit with the organization based on its personality. For individuals with high PCO, understanding these values is particularly crucial as they make career decisions based on their personal values (Briscoe et al., 2006; Hall, 1976; Hall et al., 2018). In contrast, individuals with low PCO may place less importance on symbolic attributes when evaluating how well an organization fits them, as matching their personality traits and values is less crucial to their decision-making. Therefore, symbolic attributes will also have a limited influence on their perception of the start-up's attractiveness. Thus, we hypothesize:

Hypothesis 2. PCO moderates the relationship between symbolic attributes and employer attractiveness. Specifically, higher levels of PCO will strengthen the correlation between symbolic attributes and the rating of employer attractiveness.

Beyond employer attractiveness

Finally, meta-analytic results indicate that employer attractiveness is positively associated with recruitment outcomes such as job pursuit intentions, job choice, and job offer acceptance intentions (Chapman et al., 2005; Santiago, 2019; Slaughter et al., 2004). Job search can be considered as a self-regulatory process, and the intensity of job search behavior has been identified as a leading predictor for subsequent employment (Van Hooft et al., 2021). The more job seekers engage in activities such as networking, reviewing job postings, visiting employment agencies, or seeking advice about job opportunities, the more likely they are to secure employment (Van Hooft et al., 2021). Therefore, we suggest that this relationship also applies to start-ups' employer attractiveness and influences subsequent job search behavior:

Hypothesis 3. The higher the employer attractiveness in the early phase of the recruitment process, the higher the intention to obtain further information about the company.

METHODOLOGY

Overview

This study used a 2×2 within-subject design. As predictors, we manipulated the level of symbolic attributes (high vs. low) and instrumental attributes (high vs. low). Innovativeness and meaningfulness were designated together as symbolic attributes, while compensation and job security were categorized together as instrumental attributes (similar to Moser et al., 2021). The dependent variable was employer attractiveness. Moreover, PCO was regarded as a moderator of the relationship between symbolic attributes and employer attractiveness. Additionally, employer attractiveness was considered as a predictor for participants' intention to obtain further information about the presented start-up as a potential employer. The health-tech sector was selected due to its current prominence and the high prevalence of start-ups (Djurickovic, 2025; Muhos et al., 2019; Silicon Valley Bank, 2025), thereby enhancing the realism of the stimuli. In addition, restricting the study to a single industry minimized potential confounding effects of sector-specific interests and perceptions (e.g., prestige differences across industries). Because this meant that the study materials featured fictitious health-tech start-up websites, participants' interest in the health-tech sector was assessed as a covariate to control for individual differences in sector-specific interest. The pre-registration for the study is available on the platform aspredicted.org (a deanonymized link: <https://aspredicted.org/fkzw-6y9c.pdf>). Ethical approval was not required for this study, in accordance with local legislation and the institutional requirements of Saarland University. The datasets generated and analyzed during the current study are available in the OSF repository (https://osf.io/xwcr2/?view_only=bbaf5761ecb64c49a29be1f461beeb44).

Sample

To determine the sample size, an a priori power analysis was conducted using Monte Carlo simulations for linear mixed-effects models that reflect the planned design, with four fully crossed profiles nested within participants. The focal parameter was the cross-level interaction between symbolic attributes and PCO. The interaction effect was set to $\beta = 0.10$, representing a small but meaningful cross-level effect. The intraclass correlation coefficient was assumed to be 0.60, consistent with typically high ICCs (0.40–0.70) in organizational research (Bliese, 2000). Target power was $\beta = 0.80$. Main effects for symbolic ($\beta = 0.17$) and instrumental framing ($\beta = 0.13$) were based on prior work (Lievens & Highhouse, 2003; Lievens et al., 2007). The effect of PCO was set to $\beta = 0.22$ (typical range 0.20–0.25) (Hirschi et al., 2017; Waters et al., 2014), and the effect of a standardized covariate was assumed to be $\beta = 0.20$. Predictor correlations were set to zero, and moderate random-slope variances (0.05) were assumed in the data-generating process. For each candidate sample size, 1000 datasets were simulated and analyzed using likelihood-ratio tests ($\alpha = 0.05$). This analysis indicated that a sample size of $N = 550$ participants was required to achieve at least $\beta = 0.80$ power for detecting the symbolic × PCO interaction.⁵

⁵ In the preregistration of the study, an a priori power analysis was conducted for the respective hypotheses. Regarding to the potential moderating effect in hypothesis 2, a small effect size of $f^2 = 0.02$ was assumed. A power of $\beta = 0.80$ and a significance level of $\alpha = 0.05$ were applied by convention. Based on these assumptions, the power analysis indicates that a minimum of 647 subjects is required to achieve the desired statistical power. Therefore, the number of subjects is fixed at 647. It emerged that the preliminary power analysis was incompatible with the chosen calculation model. Therefore, a revised power analysis was conducted after the initial data collection round, the results of which dictated the parameters for a subsequent round of data.

Sample recruitment

The present study used Prolific, a web-based platform for recruiting research participants (Palan & Schitter, 2018). To ensure a sample with comparable working conditions, we recruited participants only from the United States. Given that people typically start searching for a job after completing their education and that new businesses tend to appeal more to younger people as potential employers (Ouimet & Zarutskie, 2014), the present study was restricted to participants aged 18 to 30 years. Unlike previous studies on employer attractiveness in start-ups (Roach & Sauermann, 2015, 2024), we intentionally included all participants within this age range to examine how individual differences might affect attractiveness ratings, without reducing variance. In addition, an attention check item ('Please answer this item with "strongly disagree"') was included, and participants were excluded if they did not answer the item correctly or did not finish the survey. Furthermore, we anticipated that participants would spend a minimum of 7 minutes completing the survey, based on the average reading speed suggested by Carver (1992). Overall, 1101 people participated in the study. However, 59 participants were excluded due to the mentioned criteria. Additionally, participants were required to access multiple company websites. We tracked this by monitoring whether participants genuinely clicked on the provided links using JavaScript. Those who did not click on the links to the websites were subsequently excluded. This criterion resulted in the exclusion of another 491 participants.

Due to the substantial number of participants excluded from the final sample, additional analyses were conducted to identify potential systematic differences between the excluded and included groups. However, a comprehensive comparison was constrained by the fact that 307 participants revoked their consent after their submissions were rejected on Prolific (primarily due to failure to visit all required external links). Because the withdrawal of consent precluded the use of any recorded information, no demographic or study-related data were available for this subset. Among the remaining excluded participants for whom data were available, 100 were male and 76 were female; one participant declined to disclose their gender, and one value was missing. Additionally, two cases were removed due to expired data. The excluded group spent an average of 15.7 minutes completing the study ($SD = 70.0$ minutes). This high standard deviation indicates extreme variability in completion times, suggesting inconsistent engagement or significant outliers within the excluded cohort. Furthermore, while the excluded participants reported a mean interest in the health-tech sector of 3.73 ($SD = 1.27$), this figure is based on a sample of only 11 individuals and must be interpreted with caution. Consequently, a robust statistical comparison between the final and excluded samples was not feasible due to the extensive missing data resulting from consent withdrawals.

Sample description

The final sample consisted of $N = 551$ (213 female, 196 male, 4 preferred not to say, 138 did not indicate their gender). On average, participants were 25.131 years old ($SD = 3.11$). As the fictitious start-up websites were themed around health-tech, participants' interest in this field was accounted for as a covariate in our calculations. On average, participants displayed an interest level of 3.32 ($SD = 1.23$, on a 5-point Likert scale).

Procedure

Participants were directed to our survey following a link in Prolific. Initially, participants were instructed to envision themselves in a job search scenario. Subsequently, they were directed to click on links to four fictional start-up websites, with the order of the website links randomized. To ensure thorough engagement, a minimum processing time of 90 seconds for each survey page was enforced. Following their visit to each website, participants were prompted to rate the innovativeness, meaningfulness, compensation, and job security. This served as a manipulation check for the various employer attractiveness attributes: symbolic (innovativeness and meaningfulness) and instrumental (compensation and job security). After visiting each website, participants were asked to rate the attractiveness of the start-up and to indicate their intention to obtain further information about it. Towards the completion of the survey, participants were invited to assess their PCO and their interest in health-tech. On average, it took about 12 minutes (754.22 seconds, to be precise; $SD = 374.66$ seconds) to complete the experiment, and participants were paid at a rate of 7.51 British pounds per hour.

Material

To operationalize the symbolic and instrumental attributes of new businesses as realistically as possible, a total of 4 websites for fictitious start-ups were created using the online platform Wix.com (www.wix.com). This approach was chosen due to the fact that company websites are commonly used media for communicating employer branding and are among the most frequent sources of information for job seekers (Banks et al., 2019). The structure of each website was the same: about us, who we are, vision, why work for us, and our benefits (see also Figure 1). The number of words and pictures was also held equal (3 pictures and 230-238 words per website). On these websites, a combination of both symbolic and instrumental attributes was manipulated to examine their effects on employer attractiveness. For each attribute, we established two conditions: high, indicating elevated levels, and low, indicating diminished levels. This results in four types of websites, each representing combinations of start-up-specific symbolic attributes (meaningfulness and innovativeness) at high and low levels, along with classic instrumental attributes (compensation and job security) at high and low levels.

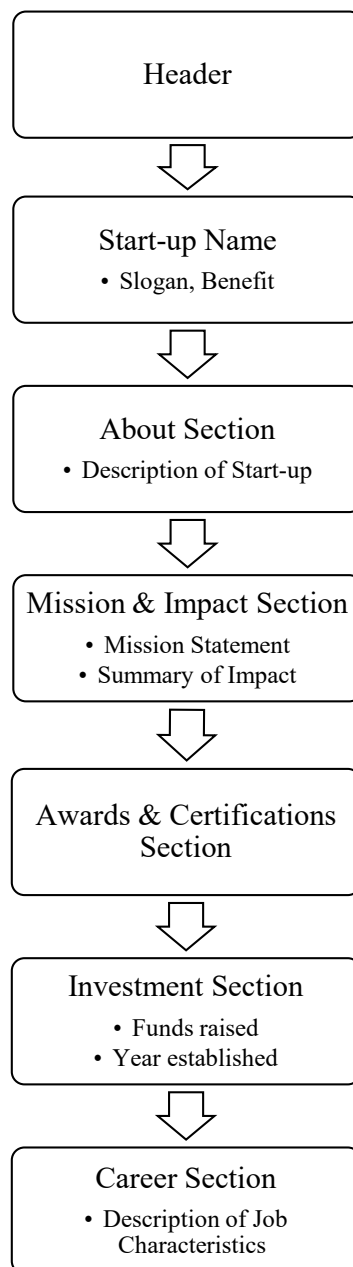


Figure 1. Structure of fictional start-up websites

The manipulation of attributes was implemented through different statements of the fictional start-up placed on the websites. The development of statements was representative of each attribute and was based on a previous study that identified a variety of words considered particularly meaningful for specific attributes (Theurer et al., 2022) and those found on websites of actual start-ups (e.g., Loom, 2024; MikMak, 2024; reCup GmbH, 2024). To achieve a very high level of realism, and given the difficulty of finding purely quantitative expressions for certain attributes, we opted to include both quantitative and qualitative expressions to represent high and low levels of the conditions. Overall, drawing on these materials led to the identification of start-up-specific attributes related to job security, compensation, innovativeness, and meaningfulness Table 1. These attributes differ from those typically used in these categories but are more plausible in a start-up context, as specifying exact monetary compensation, for example, is often not feasible because it depends on a start-up's funding situation and may change rapidly. Links to the websites of the fictitious start-ups can be found at https://osf.io/xwcr2/?view_only=2bafaa0b54fd494a9165e9b2ad3f3753.

Table 1. Manipulation of instrumental and symbolic attributes

Level	Instrumental attributes		Symbolic attributes	
	Qualitative	Quantitative	Qualitative	Quantitative
High	2 × job security (e.g., we are part of a fast-growing industry)	1 × job security (e.g., 15 Mio € in funding)	2 × innovativeness (e.g., we are a new and exciting health-tech start-up)	2 × innovativeness (e.g., we allocate 30% of our annual revenue to research and development purposes)
	2 × compensation (e.g., remote work: you decide where you want to work from)	3 × compensation (e.g., gym membership in your area: Stay fit & healthy)	2 × meaningfulness (e.g., fulfillment starts with meaningful work)	2 × meaningfulness (e.g., we already impacted > 10 Mio people by using [Start-up name] to live healthier and better lives)
		Quantitative		Quantitative
Low	2 × job security (e.g., 500 k € in funding)		2 × innovativeness (e.g., we were nominated for the Global Start-up Awards in the category Most Innovative Start-up)	
	2 × compensation (e.g., outdoor sports sessions every two weeks for the whole team)		2 × meaningfulness (e.g., for a better life: We already impact > 5k people by using [Start-up name] to ensure restful sleep and therefore more energy for daily life)	

Note: The provided numbers correspond to the number of statements regarding the respective attributes posted on the websites, resulting in 8 for high levels and 4 for low levels.

Measures

Employer attractiveness was the primary dependent variable for H1-H2 and served as a predictor for H3. It was measured with three items from a scale from Highhouse et al. (2003). Items were: “For me, COMPANY NAME would be a good place to work,” “COMPANY NAME is attractive to me as a place for employment,” and “A job at COMPANY NAME is very appealing to me.” Participants were again asked to rate this item on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The internal consistency of this scale was $\alpha = 0.94$, indicating very good reliability.

Intention to obtain more information about one of the start-ups as employers was the specific dependent variable for H3 and was measured with one item (“I would click on ‘FIND OUT MORE’ to obtain further information about working at COMPANY NAME”). Participants were asked to rate this item on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

PCO was measured using seven items from a scale from Baruch (2014). Participants rated the items on a 7-point Likert scale (1 = “strongly disagree”, 7 = “strongly agree”). Example items are: “For me, career success is how I am doing against my goals and values, or “I take responsibility for my own development. Internal consistency of this scale was $\alpha = 0.76$ and thus acceptable.

Participants' interest in the health-technology industry was assessed as a covariate and measured using one item (“How interested are you in the health-technology industry?”). Participants were asked to rate this item on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Manipulation check

To ensure the manipulation of the attributes on each company website, we implemented a manipulation check after each website. Participants were asked to rate the different start-ups of the websites on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree) for innovativeness, meaningfulness, compensation, and job security. Assessment of innovativeness was measured with one item from the “PORGI-scale” from Hurt and Teigen (1977) (“COMPANY NAME is receptive to new ideas”). Meaningfulness was measured with one item adapted from the Work as Meaning Inventory from Steger et al. (2012) („The work the employees of COMPANY NAME do serves a greater purpose”). Compensation was measured with an item based on Highhouse et al. (2003) („COMPANY NAME has a good benefit package”), and job security was measured with one item based on Lievens et al. (2007) („COMPANY NAME offers job security”). Descriptive statistics are shown in Table 2. Detailed results of the paired-samples *t*-tests are reported in Table 3.

To assess the difference in perceptions of symbolic and instrumental attribute levels, we conducted pairwise directed and non-directed *t*-tests. The results indicate that 9 of 12 *t*-tests confirmed our manipulation of symbolic and instrumental attributes across different websites. Although three within-category manipulation checks (high–high or low–low) did not demonstrate the expected outcomes, this does not compromise the manipulation’s validity, as the manipulation targeted high–low contrasts between symbolic and instrumental attributes, all of which were significant and in the expected direction, with no reversals observed.

Table 2. Descriptive statistics for the manipulation checks

	CareMe		HealthConnected		SymptomGuard		SleepWell	
	high		low		high		low	
	high		high		low		low	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Symbolic attributes	4.86	0.91	4.71	0.93	4.78	0.94	4.52	0.91
Instrumental attributes	4.83	0.88	4.72	0.93	3.98	1.10	3.60	1.13

Note: *N* = 551. “High” and “low” indicate the conditions of manipulation. “CareMe,” “HealthConnected,” “SymptomGuard,” and “SleepWell” are fictitious names of start-ups.

Table 3. Manipulation check: Paired *t*-tests

Comparisons	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Symbolic attributes: High (CareMe) vs. Low (HealthConnected)	4.20	550	<0.001**	0.18
Instrumental attributes: High (CareMe) vs. High (HealthConnected)	3.33	550	<0.001**	0.14
Symbolic attributes: High (CareMe) vs. High (SymptomGuard)	2.17	550	0.031	0.09
Instrumental attributes: High (CareMe) vs. Low (SymptomGuard)	19.80	550	<0.001**	0.84
Symbolic attributes: High (CareMe) vs. Low (SleepWell)	13.02	550	<0.001**	0.55
Instrumental attributes: High (CareMe) vs. Low (SleepWell)	25.40	550	<0.001**	1.08
Symbolic attributes: Low (HealthConnected) vs. High (SymptomGuard)	-1.51	550	0.065	-0.06
Instrumental attributes: High (HealthConnected) vs. Low (SymptomGuard)	15.87	550	<0.001**	0.68
Symbolic attributes: Low (HealthConnected) vs. Low (SleepWell)	5.57	550	<0.001**	0.24
Instrumental attributes: High (HealthConnected) vs. Low (SleepWell)	23.70	550	<0.001**	1.01
Symbolic attributes: High (SymptomGuard) vs. Low (SleepWell)	6.58	550	<0.001**	0.28
Instrumental attributes: Low (SymptomGuard) vs. Low (SleepWell)	9.34	550	<0.001**	0.40

Note: *N* = 551. Paired *t*-tests compare conditions that differ in symbolic or instrumental attribute levels (e.g., high vs. low). Cohen’s *d* refers to paired-samples effect sizes. **p* < 0.05, ***p* < 0.01.

RESULTS

All analyses were conducted using R (version 4.5.2).⁶ Hypotheses 1 and 2 were tested using hierarchical linear modeling (HLM). At Level 1, symbolic and instrumental start-up attributes were entered as fixed effects, varying within participants across scenarios. Random intercepts as well as random slopes for symbolic and instrumental attributes were specified at the participant level. At Level 2, PCO and interest in the health-technology sector were included as between-person factors, with interest in the health-technology sector serving as a covariate. Continuous predictors were grand-mean centered and standardized prior to analysis, whereas within-person binary predictors were effect-coded (-0.5/+0.5) and not standardized. The use of HLM was appropriate given the nested structure of repeated scenario evaluations within participants (Raudenbush & Bryk, 2002). Hypothesis 1 was tested using a planned contrast comparing the fixed effects of symbolic and instrumental attributes on employer attractiveness. Hypothesis 2 was examined by estimating cross-level interactions between PCO and both symbolic and instrumental attributes. Hypothesis 3 was tested using a linear mixed-effects model predicting intention to seek further information from employer attractiveness, with random intercepts and random slopes for attractiveness specified at the participant level. Table 4 reports means and standard deviations of employer attractiveness for symbolic versus instrumental attribute conditions, and Table 5 presents the results of the HLM analyses.

Table 4. Descriptive statistics for employer attractiveness for symbolic vs. instrumental attributes (1102 observations)

Predictors	Employer attractiveness				
	High		Low		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Symbolic attributes	3.75	1.02	3.47	1.13	
Instrumental attributes	3.99	0.96	3.23	1.07	

The planned contrast revealed a significantly stronger effect of instrumental than symbolic attributes on employer attractiveness, $\Delta\beta = 0.48$, $t = 10.65$, $p < 0.001$. Because both predictors were effect-coded and not standardized, this contrast reflects a direct comparison of the two manipulation effects. Thus, Hypothesis 1, which stated that symbolic attributes would contribute more to the attractiveness of start-ups than instrumental attributes, was not confirmed. Moreover, the cross-level interaction between the fixed Level 1 factor “symbolic attributes” and random Level 2 factor “PCO” was also not significant, $p = 0.514$, disconfirming Hypothesis 2.

In addition, the results of the mixed-effects model for H3 revealed a significant positive association between employer attractiveness and the intention to seek further information, $\beta = 0.88$, $t = 43.76$, $p < 0.001$. Thus, Hypothesis 3 was supported.

Table 5. Hierarchical linear modeling results, with the dependent variable being employer attractiveness

Predictors	β	95% CI	SE	<i>t</i>	<i>p</i>
Fixed effects					
(Intercept)	3.61	3.55 – 3.67	0.03	123.47	<0.001**
Symbolic attributes	0.28	0.22 – 0.34	0.03	9.45	<0.001**
Instrumental attributes	0.76	0.69 – 0.83	0.04	21.08	<0.001**
PCO	0.14	0.08 – 0.20	0.03	4.56	<0.001**
Interest for health-tech	0.32	0.26 – 0.38	0.03	10.56	<0.001**
Symbolic attributes × PCO	-0.02	-0.05 – 0.09	0.03	-0.65	0.514
Instrumental attributes × PCO	0.02	-0.05 – 0.09	0.04	0.54	0.591
Random effects					
σ^2	0.35				
$\tau_{00.id}$	0.38				
$\tau_{11.id.symb}$	0.14				

⁶ The R packages used were: lme4 (Bates et al., 2015), lmerTest (Kuznetsova et al., 2017), parameters (Lüdtke et al., 2020), effectsize (Ben-Shachar et al., 2020), dplyr (Wickham, François, et al., 2014), tidyr (Wickham, Vaughan, et al., 2014), psych (Revelle, 2007), car (Fox et al., 2001), sjPlot (Lüdtke, 2013), performance (Lüdtke et al., 2019).

Predictors	β	95% CI	SE	<i>t</i>	<i>p</i>
$\tau_{11 \text{ id.instr}}$	0.37				
$\rho_{01 \text{ id.symb}}$	-0.18				
$\rho_{01 \text{ id.instr}}$	-0.15				
ICC	0.59				
<i>N</i> id	551				

Note: Observations = 2204. Marginal $R^2 = 0.265$; conditional $R^2 = 0.699$. PCO = protean career orientation; * $p < 0.05$, ** $p < 0.01$.

Exploratory results

In addition to the preregistered tests, an exploratory analysis was conducted in which PCO was included in the hierarchical linear model as a Level-2 (between-participants) predictor. This analysis revealed a significant main effect of PCO on perceived employer attractiveness of start-ups, $\beta = 0.14$, $t = 4.56$, $p < 0.001$.

Another exploratory analysis examined whether symbolic attributes explain incremental variance in start-ups' employer attractiveness beyond instrumental attributes, as has been shown in prior research on more traditional organizational contexts (e.g., Lievens et al., 2007; Rai, 2019). To this end, two nested linear mixed-effects models were estimated and compared using likelihood-ratio tests. The baseline model included instrumental attributes and interest in the health-technology sector as fixed effects, along with random intercepts and random slopes for instrumental attributes at the participant level. The extended model additionally included symbolic attributes as fixed effects and allowed their slopes to vary across participants. Both models were estimated using maximum likelihood to enable model comparison.

The model comparison indicated that adding symbolic attributes significantly improved model fit, $\chi^2(4) = 122.92$, $p < 0.001$. In addition, the inclusion of symbolic attributes increased the proportion of variance explained by the fixed effects, as reflected in an increase in marginal R^2 from 0.23 to 0.25 ($\Delta R^2 = 0.02$). Together, these results suggest that symbolic attributes provide incremental explanatory value for employer attractiveness over and above instrumental attributes. Estimates of conditional R^2 should be treated with caution due to indications of singularity in the random-effects structure of the baseline model; therefore, interpretation should focus on marginal R^2 , which reflects variance explained by the fixed effects.

DISCUSSION

In this study, we investigated whether symbolic attributes exert a stronger influence on start-ups' employer attractiveness than instrumental attributes. Furthermore, we examined whether this affects individuals with high levels of PCO and, in the context of start-ups, sought to replicate findings on the link between employer attractiveness and job search behaviors. Our findings suggest that symbolic attributes did not have the anticipated stronger impact on employer attractiveness than instrumental attributes. Instead, instrumental attributes emerged as the primary predictor of employer attractiveness, even in the context of new ventures. Additionally, exploratory analysis revealed that PCO significantly predicts employer attractiveness for new businesses. However, PCO did not moderate the relationship between symbolic attributes and employer attractiveness. Furthermore, this study confirmed a positive relationship between attractiveness and job search behavior in the context of start-ups. Lastly, exploratory analyses revealed that, consistent with previous findings (e.g., Lievens et al., 2007), symbolic attributes explained incremental variance in start-up employer attractiveness beyond instrumental attributes.

This study aimed to examine whether symbolic attributes outperform instrumental attributes in employers' attractiveness strategies for new ventures. The results indicate that both symbolic and instrumental attributes significantly influenced employer attractiveness; however, symbolic attributes did not outperform instrumental attributes. In addition, the exploratory analyses revealed that symbolic attributes contributed incremental explanatory variance in start-up employer attractiveness. This finding is consistent with prior research conducted in more traditional employment sectors (Lievens et al., 2007; Slaughter et al., 2004). One possible explanation for these findings is that potential applicants may perceive start-ups as risky employers (Shepherd et al., 2021). As a result, they may be unwilling to consider employment with start-ups unless fundamental instrumental attributes are adequately provided, even though entrepreneurs often rely heavily on symbolic attributes to promote organizational identity.

This study also examined the role of protean career orientation in employer attractiveness. Conceptualizing PCO as an individual factor aligned with the identity of new ventures, we hypothesized that higher levels of PCO would strengthen the relationship between symbolic attributes and employer attractiveness. The results showed that PCO was a significant predictor of the attractiveness of new ventures as employers, but no interaction between PCO and symbolic attributes was observed.

So far, research about new venture attractiveness has predominantly focused on organizational characteristics (Moser et al., 2021; Tumasjan et al., 2011; Williamson et al., 2002), while individual-level research has largely emphasized personality traits rather than career-related attitudes (Roach & Sauermann, 2015; Schreurs et al., 2009). In this regard, the present study represents one of the first instances demonstrating the impact of career orientation on the attractiveness of new businesses as employers. Although career orientations are well established as important predictors of job choice (Hirschi & Koen, 2021), their integration into employer attractiveness research and established frameworks such as the instrumental-symbolic model remains limited. An exception is the work of Hoppe et al. (2022), who examined career ambition as a career-related attitude and argued for a preference for symbolic attributes, although this effect was not empirically supported. The present study similarly did not find the expected interaction effect, which may partly be due to difficulties in clearly distinguishing between instrumental and symbolic attributes. Interestingly, the findings also indicate that individuals high in PCO are generally more attracted to new ventures, independent of specific employer attributes. These findings suggest that start-ups are associated with opportunities for self-directed career management and can still attract individuals low in PCO when instrumental and symbolic attributes are clearly conveyed.

To replicate past findings of a positive relationship between employer attractiveness and job search behavior (Chapman et al., 2005; Santiago, 2019; Slaughter et al., 2004), we suggested that higher employer attractiveness would also lead to greater interest in gathering further information about the employer. The results of this study confirmed this connection. This highlights that employer branding can indeed be viewed as a valuable strategy, not only for attracting employees but also for increasing the likelihood that candidates actively seek employment at a start-up. By offering insights into the job and promoting employer attractiveness attributes, a start-up can become more familiar to job seekers, thereby clarifying the image of what it's like to work there (Hoppe et al., 2022; Lievens & Slaughter, 2016; Moser et al., 2021). This is particularly crucial for entrepreneurs, as prospective candidates may harbor doubts about working in a new venture due to its novelty and low recognition (Williamson et al., 2002).

Overall, our research provides insights into the influences of instrumental and symbolic employer attributes, as well as PCO, on the attractiveness of start-ups, thereby expanding the instrumental-symbolic framework introduced by Lievens et al. (2003) to the start-up context. Our results indicate that, consistent with previous research, both instrumental and symbolic attributes influence the attractiveness of start-ups as employers, with symbolic attributes accounting for incremental variance. We can therefore conclude that this framework seems to apply to a large variety of job contexts, including start-ups. Moreover, regarding the role of career orientations, PCO emerged as a significant predictor of the attractiveness of start-ups as employers. Although the interaction effect of symbolic attributes on the attractiveness of start-ups was not significant, we are among the first to connect career orientations to the instrumental-symbolic framework within the context of start-ups.

Limitations and future research

As with any study, this research is accompanied by certain limitations. First, our study is limited by the use of the “Prolific” platform, which compensated participants for their participation. We encountered a significant dropout rate, as a substantial number of participants did not appear to have visited the websites that were integral to the study. This suggests that participants' overall effort may have been low. Therefore, we decided to include only participants we were certain had visited the websites and spent sufficient time on them. Second, this study relied on fictitious websites for start-ups in the health-tech sector; however, this approach was necessary to test the theoretical arguments experimentally. Moreover, restricting the study to a single sector allowed for greater control over sector-specific interests, which might otherwise have differed and influenced outcomes across sectors. Third, only four representative attractiveness attributes were used to operationalize the instrumental and symbolic characteristics of start-ups as employers, limiting the generalizability of the framework to these specific attributes. Furthermore, some degree of cross-loading between attribute categories may have occurred, as high levels of funding, operationalized in this study as job security, may also imply greater meaningfulness. Nevertheless, the manipulation checks indicated clearly distinct perceptions of the start-ups' attributes. At the same time, the study reflects a high degree of realism, as start-up websites are typically ambiguous, yet represent one of the most common tools for presenting organizations as employers.

This study suggests at least two avenues for future research. First, start-ups typically compete with established companies for employees, necessitating a distinct employer branding strategy (Moser et al., 2021; Navis & Glynn, 2011). While the present study focused on the employer attractiveness of start-ups, future research should directly compare start-ups and established companies with regard to specific attractiveness attributes. Second, although PCO had a main effect on the attractiveness of start-ups as employers, the specific mechanisms linking career orientations to employer-attractiveness attributes remain unclear. Future research could, for example, examine which characteristics of start-ups function as salient signals or trigger points for individuals high in PCO, thereby increasing their attraction to such organizations.

Practical implications

This study presents evidence that instrumental and symbolic attributes enhance employer attractiveness in start-ups. When developing their employer branding strategies, entrepreneurs should recognize the importance of providing fundamental instrumental attributes alongside the more abstract, intangible symbolic values that may be easier to communicate to potential employees. Additionally, they should consider the characteristics of a new business's work culture as advantageous for individuals who prioritize autonomy in their career decisions and value intrinsic factors when selecting jobs. Such individuals can be particularly valuable assets to start-ups, as they can derive meaning from their work (Hall et al., 2018), which can facilitate the growth and development of the organizational culture within the new business. In line with this, it is advisable to seek out employees with a high PCO for start-ups.

CONCLUSION

This study contributes to the discourse on designing a distinctive employer branding strategy tailored for start-ups to attract crucial initial employees. Despite start-ups' potential to attract employees through appealing symbolic attributes, this study underscores the importance of selecting both instrumental and symbolic attributes as a foundation for attraction. Furthermore, the study reveals that career orientations, particularly PCO, significantly influence the job search behavior of potential future employees in new businesses, with individuals with high PCO levels showing greater attraction to start-ups as employers. From a practical standpoint, the study offers valuable insights for entrepreneurs seeking to develop the initial steps of an effective recruitment strategy.

References

- Acs, Z. (2006). How is entrepreneurship good for economic growth? *Innovations: Technology, Governance, Globalization*, 1(1), 97–107. <https://doi.org/10.1162/itgg.2006.1.1.97>
- Aldrich, H., & Auster, E. R. (1986). Even dwarfs started small: Liabilities of age and size and their strategic implications. *Research in Organizational Behavior*, 8, 165–198.
- Backhaus, K., & Tikoo, S. (2004). Conceptualizing and researching employer branding. *Career Development International*, 9(5), 501–517. <https://doi.org/10.1108/13620430410550754>
- Banks, G. C., Woznyj, H. M., Wesslen, R. S., Frear, K. A., Berka, G., Heggstad, E. D., & Gordon, H. L. (2019). Strategic recruitment across borders: An investigation of multinational enterprises. *Journal of Management*, 45(2), 476–509. <https://doi.org/10.1177/0149206318764295>
- Barber, A. E., Wesson, M. J., Roberson, Q. M., & Taylor, M. S. (1999). A tale of two job markets: Organizational size and its effects on hiring practices and job search behavior. *Personnel Psychology*, 52(4), 841–868. <https://doi.org/10.1111/j.1744-6570.1999.tb00182.x>
- Baruch, Y. (2014). The development and validation of a measure for protean career orientation. *International Journal of Human Resource Management*, 25(19), 2702–2723. <https://doi.org/10.1080/09585192.2014.896389>
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). Jossey-Bass.
- Briscoe, J. P., Hall, D. T., & Frautschy DeMuth, R. L. (2006). Protean and boundaryless careers: An empirical exploration. *Journal of Vocational Behavior*, 69(1), 30–47. <https://doi.org/10.1016/j.jvb.2005.09.003>
- Cardon, M. S., & Stevens, C. E. (2004). Managing human resources in small organizations: What do we know? *Human Resource Management Review*, 14(3), 295–323. <https://doi.org/10.1016/j.hrmr.2004.06.001>
- Carver, R. P. (1992). Reading rate: Theory, research, and practical implications. *Journal of Reading*, 36(2), 84–95.
- Chapman, D. S., Uggerslev, K. L., Carroll, S. A., Piasentin, K. A., & Jones, D. A. (2005). Applicant attraction to organizations and job choice: A meta-analytical review of the correlates of recruiting outcomes. *Journal of Applied Psychology*, 90(5), 928–944. <https://doi.org/10.1037/0021-9010.90.5.928>
- Clarke, J. (2011). Revitalizing entrepreneurship: How visual symbols are used in entrepreneurial performances. *Journal of Management Studies*, 48(6), 1365–1391. <https://doi.org/10.1111/j.1467-6486.2010.01002.x>
- Decker, R., Haltiwanger, J., Jarmin, R., & Miranda, J. (2014). The role of entrepreneurship in US job creation and economic dynamism. *Journal of Economic Perspectives*, 28(3), 3–24. <https://doi.org/10.1257/jep.28.3.3>

- DeSantola, A., & Gulati, R. (2017). Scaling: Organizing and growth in entrepreneurial ventures. *Academy of Management Annals*, 11(2), 640–668. <https://doi.org/10.5465/annals.2015.0125>
- Dirik, D., & Özdoğan, B. (2025). To start or not to start? An exploratory study of work meaningfulness among start-up co-founders. *Frontiers in Psychology*, 15, Article 1500036. <https://doi.org/10.3389/fpsyg.2024.1500036>
- Djurickovic, T. (2025, September 11). Europe's 10 biggest healthtech deals in H1 2025. Tech.eu. <https://tech.eu/2025/09/11/europes-10-biggest-healthtech-deals-in-h1-2025/>
- Gerber, M., Wittekind, A., Grote, G., & Staffelbach, B. (2009). Exploring types of career orientation: A latent class analysis approach. *Journal of Vocational Behavior*, 75(3), 303–318. <https://doi.org/10.1016/j.jvb.2009.04.003>
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, 16(2), 250–279. [https://doi.org/10.1016/0030-5073\(76\)90016-7](https://doi.org/10.1016/0030-5073(76)90016-7)
- Hall, D. T. (1976). *Careers in organizations*. Goodyear.
- Hall, D. T., Yip, J., & Doiron, K. (2018). Protean careers at work: Self-direction and values orientation in psychological success. *Annual Review of Organizational Psychology and Organizational Behavior*, 5, 129–156. <https://doi.org/10.1146/annurev-orgpsych-032117-104631>
- Heneman, R. L., Tansky, J. W., & Camp, S. M. (2000). Human resource management practices in small and medium-sized enterprises: Unanswered questions and future research perspectives. *Entrepreneurship Theory and Practice*, 25(1), 11–26. <https://doi.org/10.1177/104225870002500103>
- Highhouse, S., Lievens, F., & Sinar, E. F. (2003). Measuring attraction to organizations. *Educational and Psychological Measurement*, 63(6), 986–1001. <https://doi.org/10.1177/0013164403258403>
- Hirschi, A., & Koen, J. (2021). Contemporary career orientations and career self-management: A review and integration. *Journal of Vocational Behavior*, 126, Article 103505. <https://doi.org/10.1016/j.jvb.2020.103505>
- Hoppe, D., Keller, H., & Horstmann, F. (2022). Got employer image? How applicants choose their employer. *Corporate Reputation Review*, 25(2), 139–159. <https://doi.org/10.1057/s41299-021-00119-3>
- Hurt, T. H., & Teigen, W. C. (1977). The development of a measure of perceived organizational innovativeness. *Annals of the International Communication Association*, 1(1), 377–385. <https://doi.org/10.1080/23808985.1977.11923693>
- Hyytinen, A., Pajarinen, M., & Rouvinen, P. (2015). Does innovativeness reduce start-up survival rates? *Journal of Business Venturing*, 30(4), 564–581. <https://doi.org/10.1016/j.jbusvent.2014.10.001>
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurements, and implications. *Personnel Psychology*, 49(1), 1–49. <https://doi.org/10.1111/j.1744-6570.1996.tb01790.x>
- Li, C. S., Goering, D. D., Montanye, M. R., & Su, R. (2022). Understanding the career and job outcomes of contemporary career attitudes within the context of career environments: An integrative meta-analysis. *Journal of Organizational Behavior*, 43(2), 286–309. <https://doi.org/10.1002/job.2510>
- Lievens, F., & Highhouse, S. (2003). The relation of instrumental and symbolic attributes to a company's attractiveness as an employer. *Personnel Psychology*, 56(1), 75–102. <https://doi.org/10.1111/j.1744-6570.2003.tb00144.x>
- Lievens, F., & Slaughter, J. E. (2016). Employer image and employer branding: What we know and what we need to know. *Annual Review of Organizational Psychology and Organizational Behavior*, 3, 407–440. <https://doi.org/10.1146/annurev-orgpsych-041015-062501>
- Lievens, F., Van Hove, G., & Anseel, F. (2007). Organizational identity and employer image: Towards a unifying framework. *British Journal of Management*, 18(s1), S45–S59. <https://doi.org/10.1111/j.1467-8551.2007.00525.x>
- Loom. (2024). *Free screen recorder for Mac and PC*. Loom. <https://www.loom.com/>
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172. <https://doi.org/10.2307/258632>
- Maheshwari, V., Gunesh, P., Lodorfos, G., & Konstantopoulou, A. (2017). Exploring HR practitioners' perspective on employer branding and its role in organisational attractiveness and talent management. *International Journal of Organizational Analysis*, 25(5), 742–761. <https://doi.org/10.1108/IJOA-03-2017-1136>
- Markman, G. D., Balkin, D. B., & Baron, R. A. (2002). Inventors and new venture formation: The effects of general self-efficacy and regretful thinking. *Entrepreneurship Theory and Practice*, 27(2), 149–165. <https://doi.org/10.1111/1540-8520.00004>
- Mason, C., & Stark, M. (2004). What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels. *International Small Business Journal: Researching Entrepreneurship*, 22(3), 227–248. <https://doi.org/10.1177/0266242604042377>
- MikMak. (2024). *Work at MikMak!* <https://www.mikmak.com/join>
- Moser, K., Tumasjan, A., & Welpe, I. M. (2017). Small but attractive: Dimensions of new venture employer attractiveness and the moderating role of applicants' entrepreneurial behaviors. *Journal of Business Venturing*, 32(5), 588–610. <https://doi.org/10.1016/j.jbusvent.2017.05.001>
- Moser, K., Tumasjan, A., & Welpe, I. M. (2021). *What is the right mix? Toward a compensatory theory of employer attractiveness* (SSRN Scholarly Paper 3819131). Social Science Research Network. <https://doi.org/10.2139/ssrn.3819131>
- Muhs, M., Saarela, M., Foit, D., & Rasochova, L. (2019). Management priorities of digital health service start-ups in California. *International Entrepreneurship and Management Journal*, 15(1), 43–62. <https://doi.org/10.1007/s11365-018-0546-z>
- Navis, C., & Glynn, M. A. (2011). Legitimate distinctiveness and the entrepreneurial identity: Influence on investor judgments of new venture plausibility. *Academy of Management Review*, 36(3), 479–499. <https://doi.org/10.5465/amr.2008.0361>
- Ouimet, P., & Zarutskie, R. (2014). Who works for start-ups? The relation between firm age, employee age, and growth. *Journal of Financial Economics*, 112(3), 386–407. <https://doi.org/10.1016/j.jfineco.2014.03.003>
- Palan, S., & Schitter, C. (2018). Prolific.ac: A subject pool for online experiments. *Journal of Behavioral and Experimental Finance*, 17, 22–27. <https://doi.org/10.1016/j.jbef.2017.12.004>
- Park, C. W., Jaworski, B. J., & Mac Innis, D. J. (1986). Strategic brand concept-image management. *Journal of Marketing*, 50(4), 135–145. <https://doi.org/10.1177/002224298605000401>
- Price, K. H., Harrison, D. A., Gavin, J. H., & Florey, A. T. (2002). Time, teams, and task performance: Changing effects of surface-and deep-level diversity on group functioning. *Academy of Management Journal*, 45(5), 1029–1045. <https://doi.org/10.2307/3069328>
- Rai, A. (2019). An application of the instrumental-symbolic framework in Maritime industry: A study on employer branding among seafarers. *Management Research Review*, 43(3), 270–292. <https://doi.org/10.1108/MRR-04-2019-0181>
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Sage.
- reCup GmbH. (2024). *Müllvermeidung [Waste prevention]*. <https://recup.de/muellvermeidung/>

- Roach, M., & Sauermaun, H. (2015). Founder or joiner? The role of preferences and context in shaping different entrepreneurial interests. *Management Science*, 61(9), 2160–2184. <https://doi.org/10.1287/mnsc.2014.2100>
- Roach, M., & Sauermaun, H. (2024). Can technology start-ups hire talented early employees? Ability, preferences, and employee first job choice. *Management Science*, 70(6), 3619–3644. <https://doi.org/10.1287/mnsc.2023.4868>
- Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing*, 26(4), 441–457. <https://doi.org/10.1016/j.jbusvent.2009.12.002>
- Santiago, J. (2019). The relationship between brand attractiveness and the intent to apply for a job: A millennials' perspective. *European Journal of Management and Business Economics*, 28(2), 142–157. <https://doi.org/10.1108/EJMBE-12-2018-0136>
- Sauermaun, H. (2018). Fire in the belly? Employee motives and innovative performance in start-ups versus established firms. *Strategic Entrepreneurship Journal*, 12(4), 423–454. <https://doi.org/10.1002/sej.1267>
- Schreurs, B., Druart, C., Proost, K., & De Witte, K. (2009). Symbolic attributes and organizational attractiveness: The moderating effects of applicant personality. *International Journal of Selection and Assessment*, 17(1), 35–46. <https://doi.org/10.1111/j.1468-2389.2009.00449.x>
- Shepherd, D. A., Souitaris, V., & Gruber, M. (2021). Creating new ventures: A review and research agenda. *Journal of Management*, 47(1), 11–42. <https://doi.org/10.1177/0149206319900537>
- Shepherd, D. A., & Zacharakis, A. (2003). A new venture's cognitive legitimacy: An assessment by customers. *Journal of Small Business Management*, 41(2), 148–167. <https://doi.org/10.1111/1540-627X.00073>
- Silicon Valley Bank. (2025). Future of healthtech 2025. <https://www.svb.com/trends-insights/reports/healthtech-trends-report/>
- Slaughter, J. E., Zickar, M. J., Highhouse, S., & Mohr, D. C. (2004). Personality trait inferences about organizations: Development of a measure and assessment. *Journal of Applied Psychology*, 89(1), 85–103. <https://doi.org/10.1037/0021-9010.89.1.85>
- Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The work and meaning inventory (WAMI). *Journal of Career Assessment*, 20(3), 322–337. <https://doi.org/10.1177/1069072711436160>
- Theurer, C. P., Schäpers, P., Tumasjan, A., Welpel, I., & Lievens, F. (2022). What you see is what you get? Measuring companies' projected employer image attributes via companies' employment webpages. *Human Resource Management*, 61(5), 543–561. <https://doi.org/10.1002/hrm.22085>
- Theurer, C. P., Tumasjan, A., Welpel, I. M., & Lievens, F. (2018). Employer branding: A brand equity-based literature review and research agenda. *International Journal of Management Reviews*, 20(1), 155–179. <https://doi.org/10.1111/ijmr.12121>
- Tumasjan, A., Strobel, M., & Welpel, I. M. (2011). Employer brand building for start-ups: Which job attributes do employees value most? *Zeitschrift für Betriebswirtschaft*, 81(6), 111–136. <https://doi.org/10.1007/s11573-011-0507-2>
- Turban, D. B., & Cable, D. M. (2003). Firm reputation and applicant pool characteristics. *Journal of Organizational Behavior*, 24(6), 733–751. <https://doi.org/10.1002/job.215>
- Ucbasaran, D., Lockett, A., Wright, M., & Westhead, P. (2003). Entrepreneurial founder teams: Factors associated with member entry and exit. *Entrepreneurship Theory and Practice*, 28(2), 107–128. <https://doi.org/10.1046/j.1540-6520.2003.00034.x>
- Van Hooft, E. A. J., Kammeyer-Mueller, J. D., Wanberg, C. R., Kanfer, R., & Basbug, G. (2021). Job search and employment success: A quantitative review and future research agenda. *Journal of Applied Psychology*, 106(5), 674–713. <https://doi.org/10.1037/apl0000675>
- Van Hooft, E. A. J., Bas, T., Cromheecke, S., & Lievens, F. (2013). The instrumental and symbolic dimensions of organisations' image as an employer: A large-scale field study on employer branding in Turkey. *Applied Psychology*, 62(4), 543–557. <https://doi.org/10.1111/j.1464-0597.2012.00495.x>
- Volkmer, P., Baum, M., & Coviello, N. (2024). Do international new ventures have attraction advantages? Insights from a recruitment perspective. *Journal of World Business*, 59(3), Article 101530. <https://doi.org/10.1016/j.jwb.2024.101530>
- Williamson, I. O., Cable, D. M., & Aldrich, H. E. (2002). Smaller but not necessarily weaker: How small businesses can overcome barriers to recruitment. In J. A. Katz & T. M. Welbourne (Eds.), *Managing people in entrepreneurial organizations* (Vol. 5, pp. 83–106). Emerald. [https://doi.org/10.1016/S1074-7540\(02\)05005-5](https://doi.org/10.1016/S1074-7540(02)05005-5)
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26(2), 179–201. <https://doi.org/10.5465/amr.2001.4378011>
- Zhu, H., Smith, C., & Brown, G. (2024). Founder dynamic psychological ownership: Impacts on self and others at work. *Applied Psychology*, 73(4), 1511–1534. <https://doi.org/10.1111/apps.12505>
- Zott, C., & Huy, Q. N. (2007). How entrepreneurs use symbolic management to acquire resources. *Administrative Science Quarterly*, 52(1), 70–105. <https://doi.org/10.2189/asqu.52.1.70>
- Zottoli, M. A., & Wanous, J. P. (2000). Recruitment source research: Current status and future directions. *Human Resource Management Review*, 10(4), 353–382. [https://doi.org/10.1016/S1053-4822\(00\)00032-2](https://doi.org/10.1016/S1053-4822(00)00032-2)

Biographical notes

Theresa U. Zimmer received her doctoral degree from Universität des Saarlandes (Saarbrücken, Germany) and is a researcher at Saarland University. Her research focuses on how new businesses evolve into sustainable organizations that generate employment and contribute to economic development and social welfare. Her current work examines new venture hiring, start-up employer attractiveness, the internal development of decision-making structures, and female entrepreneurship. She has coordinated several international capacity-building projects in countries of the Global South, including Kenya, Pakistan, Jordan, and Iraq.

Cornelius J. König is professor of work and organizational psychology at Universität des Saarlandes (Saarbrücken, Germany). He received his doctoral degree in psychology from Philipps-Universität Marburg, Germany. His current main research interests are personnel selection, job insecurity and firing, entrepreneurship, and electronic monitoring at work. He has published in journals such as *Academy of Management Review*, *Annual Review of Organizational Psychology and Organizational Behavior*, *Journal of Applied Psychology*, and *Personnel Psychology*, among others. He also served as Vice-President for Internationalization and European Relations at Universität des Saarlandes.

Valentin Hemm received a Bachelor of Science in Psychology from Universität des Saarlandes, Saarbrücken, Germany, and is currently a Master's student in Psychology with a focus on Industrial and Organizational Psychology and Applied Social Psychology. His research interests include entrepreneurship as well as personnel selection and assessment in occupational contexts.

Nida ul H. Bajwa received a doctoral degree from Universität des Saarlandes (Saarbrücken, Germany) and is a senior researcher in Work and Organizational Psychology at Universität des Saarlandes. His main research interests include entrepreneurship, human factors in IT security, and the research–practice gap in management. He has published in journals such as *Academy of Management Learning and Education*, *European Journal of Work and Organizational Psychology*, and *Journal of Vocational Behavior*, among others. He has frequently conducted entrepreneurship-related capacity-building projects in countries including Jordan, Pakistan, Iraq, Romania, Kenya, France, and Ireland.

Author contribution statement

Theresa U. Zimmer: Conceptualization, Data Curation, Formal Analysis, Methodology, Project Administration, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing. **Cornelius J. König:** Resources, Conceptualization, Supervision, Writing – Review & Editing. **Valentin Hemm:** Writing – Original Draft Preparation, Investigation, Methodology. **Nida ul H. Bajwa:** Resources, Supervision.

Conflicts of interest

The authors declare no conflicts of interest.

Citation (APA Style)

Zimmer, T. U., König, C. J., Hemm, V., & Bajwa, N. H. (2026). Employer attractiveness in start-ups: Evidence for the instrumental and symbolic framework and the role of protean career orientation. *Journal of Entrepreneurship, Management and Innovation*, 22(1), 5-20. <https://doi.org/10.7341/20262211>