

## Research Article

# Employee Performance in Technology Startups: A Conceptual Framework of Managerial Practices, Organizational Culture, Self-Efficacy, and Industry Pressure

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## Abstract

Employee performance is a persistent concern for technology startups because employees work with fluid roles, limited formal systems, and rapid market and technological change. This conceptual paper develops a testable framework linking founders' managerial practices, organizational culture, and employees' self-efficacy to employee performance, with industry pressure as a contextual moderator. Job Demands-Resources theory explains how managerial practices and culture operate as job resources and how self-efficacy operates as a personal resource. Contingency theory explains why the value of these resources may depend on external pressure. Six hypotheses are developed. The three internal resources are expected to improve employee performance, and industry pressure is expected to strengthen these positive relationships within a non-overwhelming range because clear direction, collaboration, learning, and confidence become more valuable as competitive and technological demands increase. Extreme pressure is treated as a boundary condition that may instead exhaust resources. No empirical data have been collected or analyzed for this manuscript. To support future testing, the paper specifies a proposed cross-sectional survey of technology-startup employees in Hangzhou, China, including purposive recruitment, a power-based sample-size rationale, multi-item measures, common-method-bias remedies, ethical procedures, and a complete PLS-SEM reporting plan. The framework clarifies how internal resources and environmental demands may jointly shape performance in resource-constrained startups.

## Keywords

Employee performance, technology startups, managerial practices, organizational culture, self-efficacy, industry pressure, conceptual framework

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## 1. Introduction

Employee performance is especially consequential in technology startups, where small teams, limited resources, and rapidly changing priorities make individual contributions highly visible. Compared with mature firms, startups often rely on informal coordination and evolving roles. Their employees must complete assigned work while adapting, learning, solving novel problems, and taking initiative. These conditions make employee performance both a task outcome and an adaptive response to uncertainty (Koopmans et al., 2014; Prommer et al., 2020).

Technology startups in Hangzhou provide a relevant setting for examining these issues because the city hosts firms in software, artificial intelligence, e-commerce, platform services, and other digital industries. Such firms may face intense competition and rapid technological change while formal human-resource systems are still developing. In this context, founders often remain responsible for daily goal setting, delegation, feedback, and motivation, and their behavior may directly shape how employees interpret priorities (Ahearne et al., 2005; Prommer et al., 2020).

Prior studies connect leadership, culture, and psychological resources with performance, but these factors are often examined separately. This separation is restrictive in startups. Founders' managerial practices can provide direction and autonomy; organizational culture can support innovation, collaboration, and learning; and self-efficacy can sustain effort when tasks are unfamiliar (Ahmed et al., 2022; Denison & Mishra, 1995; Lu et al., 2016). Their effects may also vary with industry pressure. Competitive intensity and technological turbulence can increase the value of internal resources, although pressure that becomes overwhelming may produce strain and exhaustion (Jaworski & Kohli, 1993; Tummers & Bakker, 2021).

This paper therefore develops an integrated conceptual framework with two objectives. First, it explains how founders' managerial practices, organizational culture, and employees' self-efficacy may influence employee performance. Second, it specifies how industry pressure may strengthen these relationships within a non-overwhelming range. The contribution is theoretical and design-oriented: the manuscript states testable hypotheses and provides a transparent protocol for a future empirical study. No data have been collected or analyzed, and the paper does not claim confirmed findings.

## 2. Literature Review and Hypothesis Development

### 2.1. Theoretical Integration

Job Demands-Resources theory distinguishes demands that require sustained effort from

resources that help employees achieve goals, learn, and cope with those demands (Bakker & Demerouti, 2007). In the proposed framework, founders' managerial practices and organizational culture are job resources because they provide direction, autonomy, feedback, cooperation, and learning support. Self-efficacy is a personal resource because it represents confidence in one's capacity to act effectively under difficulty (Bandura, 1997). These resource pathways provide the theoretical basis for H1-H3.

Contingency theory holds that organizational practices do not have identical effects in every environment; their effectiveness depends on alignment with contextual conditions (Donaldson, 2001). Industry pressure represents the external demand condition in this framework. As competitive and technological demands rise, employees may benefit more from clear management, a supportive culture, and personal confidence. Contingency theory therefore provides the basis for H4-H6, while Job Demands-Resources theory explains the mechanisms through which the focal resources remain useful under pressure. This division of explanatory roles integrates the two theories without repeating them in the methodology.

## 2.2. Founders' Managerial Practices and Employee Performance

Founders' managerial practices refer to recurring behaviors used to clarify goals, involve employees in decisions, delegate authority, communicate confidence, and provide developmental feedback. These behaviors are particularly salient when a startup has not established formal human-resource systems. Goal clarity reduces uncertainty about priorities, participation and delegation increase ownership, and constructive feedback enables timely correction and learning (Ahearne et al., 2005; Ahmed et al., 2022).

The Job Demands-Resources perspective treats these practices as resources that help employees convert effort into performance. Employees who understand objectives and have sufficient discretion can respond more quickly to changing work. Supportive feedback and confidence from a founder may also sustain motivation during setbacks. Accordingly, founders' managerial practices should be positively associated with performance in early-stage technology firms.

H1: Founders' managerial practices are positively associated with employee performance.

## 2.3. Organizational Culture and Employee Performance

Organizational culture comprises shared values and behavioral expectations. In a startup, culture is still forming and is often communicated through founders' decisions and daily interactions. A culture that supports innovation encourages experimentation; a collaborative culture facilitates knowledge exchange and mutual assistance; and a learning-oriented culture makes reflection and improvement legitimate (Denison & Mishra, 1995; Pratiwi & Nawangsari, 2021).

These cultural attributes constitute job resources because they improve access to information and

social support. They can help employees solve novel problems, coordinate across fluid roles, and recover from mistakes. By contrast, inconsistent cultural messages can create mistrust and discourage initiative. A coherent culture that supports innovation, collaboration, and learning should therefore improve employees' capacity to perform.

H2: A supportive organizational culture is positively associated with employee performance.

## 2.4. Employees' Self-Efficacy and Employee Performance

Self-efficacy is an individual's belief in the capacity to organize and execute actions required to manage prospective situations (Bandura, 1997). Employees with stronger self-efficacy tend to set challenging goals, persist when difficulties occur, and interpret obstacles as manageable. Evidence from stressful work settings also links general self-efficacy to stronger job performance (Lu et al., 2016).

Self-efficacy is particularly relevant in technology startups because employees often encounter ambiguous roles, new technologies, and incomplete procedures. Confidence in task completion, learning, and problem solving can support experimentation and sustained effort. As a personal resource, self-efficacy should therefore help employees maintain performance when work is uncertain.

H3: Employees' self-efficacy is positively associated with employee performance.

## 2.5. Industry Pressure as a Moderator

Industry pressure is defined here as employees' perception of competitive intensity and technological turbulence in the startup's external environment. Competitive intensity reflects the strength and speed of rival actions, whereas technological turbulence reflects the rate and unpredictability of technological change (Jaworski & Kohli, 1993). This definition replaces the earlier single-item, omnibus treatment of industry pressure with a conceptually bounded, multi-item construct.

The expected moderation is directional. Within a non-overwhelming range, higher industry pressure should increase the usefulness of internal resources. Clear goals, autonomy, and timely feedback become more valuable when response time is short; collaboration and learning become more valuable when information changes quickly; and self-efficacy becomes more valuable when employees must act despite uncertainty. The predicted interaction coefficients are therefore positive.

Extremely high pressure remains an important boundary condition. If demands chronically exceed employees' capacity, strain and exhaustion may offset the benefits of available resources (Tummers & Bakker, 2021). The proposed linear moderation tests address the ordinary observed range of competitive and technological pressure; future longitudinal research should test whether the interactions become nonlinear at extreme levels.

H4: Industry pressure strengthens the positive relationship between founders' managerial

practices and employee performance.

H5: Industry pressure strengthens the positive relationship between a supportive organizational culture and employee performance.

H6: Industry pressure strengthens the positive relationship between employees' self-efficacy and employee performance.

### 3. Proposed Methodology

#### 3.1. Research Status and Design

This manuscript is a conceptual paper that specifies a proposed empirical study. Data collection has not begun, no startups or respondents have yet been included, and no response rate or statistical results are available. The future study will use a cross-sectional, explanatory survey to test the six hypotheses with employee-level data from technology startups in Hangzhou. The unit of analysis will be the individual employee. The design is appropriate for an initial test of associations and moderation, but causal language will be avoided because temporal precedence cannot be established.

#### 3.2. Population, Sampling, and Recruitment

The proposed population comprises employees of early-stage technology startups in Hangzhou operating in software, artificial intelligence, e-commerce, platform services, and related digital industries. Eligible respondents will be at least 18 years old, employed by the focal startup for at least three months, and working closely enough with a founder or founding manager to evaluate managerial practices. Interns, founders evaluating themselves, and employees of mature non-startup firms will be excluded.

Because a complete sampling frame of startup employees is unlikely to be available, the study will use non-probability purposive sampling supplemented by convenience access. Recruitment will proceed through incubators, startup associations, company contacts, and employee professional networks. Organizations will receive a standardized invitation, and the anonymous survey link will be shared with eligible employees rather than completed by founders on their behalf. The planned field period is 12 weeks after ethical approval. Approximately 800 eligible employees will be invited to obtain a target of 400 usable responses, corresponding to an anticipated response rate of about 50%. The achieved sample, number of participating startups, sector distribution, response rate, exclusions, and respondent demographics will be reported transparently if the study is conducted.

#### 3.3. Target Sample Size

The target of 400 usable responses is based on statistical power and model-stability considerations rather than an unsupported rule of thumb. For a multiple-regression approximation with

seven predictor terms (three focal predictors, industry pressure, and three interaction terms), a medium effect size of  $f^2 = .15$ ,  $\alpha = .05$ , and power = .95 requires a minimum sample of approximately 153 (Cohen, 1988). A target of 400 allows for incomplete responses, subgroup description, non-normal data, and the greater sampling variability associated with interaction effects. The final report will distinguish invited, returned, excluded, and usable questionnaires.

### 3.4. Measures and Adaptation

All focal constructs will be measured with multiple items. Unless an original scale requires a different response format, items will use a five-point agreement scale from 1 (strongly disagree) to 5 (strongly agree). Five response categories balance respondent burden and measurement quality in general survey settings (Dawes, 2008; Revilla et al., 2014). Table 1 specifies the proposed item numbers, sources, and illustrative adapted items. The illustrative wording will be reviewed against the licensed or published original instruments before fieldwork.

**Table 1**

*Proposed measurement specification*

| Construct                      | Operational coverage                                                                          | Proposed source and items                                                                         | Illustrative adapted item                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Founders' managerial practices | Meaning, participation, confidence, and autonomy, with wording adapted to the founder context | Ahearne et al. (2005), 12 items                                                                   | The founder helps me understand how my work goals support the startup.    |
| Organizational culture         | Innovation, collaboration, and learning orientation                                           | Denison and Mishra (1995), 9 adapted items                                                        | People in this startup share knowledge and learn from mistakes.           |
| Employees' self-efficacy       | Confidence in handling difficult and unfamiliar work demands                                  | Schwarzer and Jerusalem (1995), 10 items                                                          | I can find a way to solve difficult work problems.                        |
| Industry pressure              | Competitive intensity and technological turbulence                                            | Jaworski and Kohli (1993), 11 items: 6 competitive-intensity and 5 technological-turbulence items | Technological changes in our industry are rapid and difficult to predict. |
| Employee performance           | Task and contextual performance during the previous three                                     | Koopmans et al. (2014), 13 positive items: 5 task-performance and 8                               | During the past three months, I completed my work efficiently             |

If the questionnaire is administered in Chinese, translation and back-translation will be completed by independent bilingual translators following Brislin's (1970) procedure. An expert panel comprising organizational-behavior researchers and startup practitioners will assess content relevance and contextual wording. A pilot test with 30-50 eligible employees who will not enter the main sample will assess comprehension, completion time, and preliminary internal consistency. Any item adaptation or deletion will be documented before confirmatory analysis.

### 3.5. Survey Administration and Ethics

Data collection will begin only after approval from the authors' institutional ethics committee. The first survey page will explain the study purpose, voluntary participation, eligibility, expected completion time, confidentiality, data use, and the right to stop without penalty. Respondents will provide informed consent before accessing the items. The survey will not request names, employee numbers, or direct identifiers; internet-protocol collection will be disabled where the platform permits. Data will be stored securely and accessed only by the research team. Because the study is not yet underway, an approval number and achieved consent rate cannot be reported at this stage and must be added before any empirical manuscript is submitted.

### 3.6. Common Method Bias

The proposed design uses single-source, cross-sectional self-reports and is therefore vulnerable to common method bias. Procedural remedies will include anonymity, neutral instructions, concise wording, separation of predictor and outcome blocks, varied item order, and a psychologically unrelated marker variable (Podsakoff et al., 2003). Statistical assessment will not rely on Harman's single-factor test alone. The future report will present the percentage of variance explained by the first unrotated factor as a diagnostic, test the marker-variable adjustment, and examine full-collinearity variance inflation factors. Substantive conclusions will be qualified if these diagnostics indicate material method variance.

### 3.7. Proposed Data Analysis and Reporting

The future empirical analysis will use PLS-SEM because the model contains latent constructs and three interaction terms. Before structural testing, the report will describe the final sample and participating startups and present means, standard deviations, correlations, missing-data treatment, and distributional diagnostics. Indicator loadings, Cronbach's alpha, composite reliability, and average variance extracted will be reported for every reflective construct. Values of at least .70 for alpha and

composite reliability and at least .50 for average variance extracted will be used as general benchmarks, considered together with item content and model diagnostics (Hair et al., 2022).

Discriminant validity will be evaluated using the heterotrait-monotrait ratio, with confidence intervals and the conventional .85 or .90 guidance, and the Fornell-Larcker criterion will be reported as supplementary evidence (Fornell & Larcker, 1981; Henseler et al., 2015). The structural model will report collinearity statistics, standardized path coefficients, bootstrap standard errors, t values, p values, and 95% confidence intervals. It will also report  $R^2$  for employee performance,  $f^2$  effect sizes, and predictive-relevance statistics where appropriate (Hair et al., 2022).

H1-H3 will be evaluated from the direct paths. H4-H6 will be tested by creating separate product terms between mean-centered industry pressure and each internal resource. A positive, statistically supported interaction coefficient will be consistent with the directional strengthening hypothesis. Significant interactions will be graphed at low, mean, and high levels of industry pressure and interpreted using simple slopes. Any empirical article produced from the study will include a distinct Results section with complete tables before discussing the findings.

## 4. Theoretical Discussion and Practical Implications

### 4.1. Theoretical Implications

The framework makes three theoretical claims that require empirical testing. First, startup performance should be explained through resources at multiple levels: founder behavior and culture provide job resources, whereas self-efficacy provides a personal resource. Second, the framework connects Job Demands-Resources theory with contingency theory by treating industry pressure as a condition that can change the value of these resources. Third, the directional moderation hypotheses distinguish pressure that mobilizes resource use from extreme pressure that may deplete employees. These claims extend beyond a simple list of predictors and define specific relationships that can be supported, rejected, or refined by future evidence.

### 4.2. Practical Implications

If the proposed relationships are supported, founders should establish simple and consistent routines for goal clarification, participation, delegation, confidence building, and feedback rather than relying solely on urgency or informal communication. Startups may also benefit from cultural practices that normalize knowledge sharing, learning from mistakes, and cross-role collaboration. Training and mastery opportunities could strengthen employees' self-efficacy. These practices may be particularly useful when competitive and technological pressure rises, although they should not be used to justify chronic overload. Because the framework has not yet been tested, these implications are provisional rather than evidence-based recommendations from the present study.

## 5. Limitations and Future Empirical Research

This paper is conceptual and reports no empirical findings. Its proposed cross-sectional design would estimate associations but could not establish causality or show how pressure and performance change over time. The reliance on one employee survey would also leave residual common method risk despite procedural and statistical remedies. Purposive and convenience recruitment in one city may limit representativeness and generalizability, and employees nested within startups may produce non-independent observations.

Future research should first implement the proposed protocol and report the complete measurement and structural results. Subsequent studies should use longitudinal or time-lagged designs, obtain supervisor-rated or objective performance indicators, and model employees as nested within startups when the number of participating firms permits multilevel analysis. Replication across regions, startup stages, and technology sectors is needed. Researchers should also test nonlinear moderation to determine whether industry pressure initially strengthens resource-performance relationships but weakens them after demands become overwhelming.

## 6. Conclusion

This conceptual paper proposes that founders' managerial practices, a supportive organizational culture, and employees' self-efficacy are positively associated with employee performance in technology startups. It further predicts that competitive and technological industry pressure strengthens these relationships within a non-overwhelming range. By separating theoretical propositions from empirical claims and specifying a reproducible study protocol, the paper provides a transparent foundation for future testing. Its contribution will remain conceptual until data are collected, analyzed, and reported in accordance with the proposed measurement and PLS-SEM procedures.

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## Declarations

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Not applicable.

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