The Predictive Influence of Corporate Entrepreneurship on Innovative Work Behavior in the Pharmaceutical Sector

Michael E. Keady
University of Arizona Global Campus, San Diego, CA, USA

Pamelyn S. Witteman
Capella University, Minneapolis, MN, USA

Colleen P. Ramos
Keiser University, Fort Lauderdale, FL, USA

Dawn B. Valentine
Texas Tech University, Lubbock, TX, USA

[Abstract] Grounded in the resource-based view (RBV) theory, this empirical study examines the predictive relationship between corporate entrepreneurship (CE) dimensions and innovative work behavior (IWB) among managers in North American pharmaceutical firms. Utilizing a quantitative, non-experimental design, data were collected from 92 managerial-level respondents using the Corporate Entrepreneurship Assessment Instrument and the Innovative Work Behavior Scale. Multiple linear regression analysis was employed to assess the relationship between CE dimensions management support, work discretion, rewards/reinforcement, time availability, and organizational boundaries and IWB. The results reveal a significant positive relationship between CE and IWB, with management support emerging as a key predictor of this relationship. These findings offer empirical support for RBV theory and provide practical implications for fostering innovation through entrepreneurial organizational practices. Future research should explore these constructs in a post-COVID-19 context to account for shifting organizational dynamics.

[Keywords] resource-based view theory, corporate strategy, corporate entrepreneurship, corporate entrepreneurship assessment instrument, innovation, entrepreneurial orientation, innovative work behaviors, and innovative work behavior survey

Introduction

Corporate entrepreneurship (CE) has emerged as a vital strategy for sustaining innovation and competitiveness within established organizations, particularly in dynamic sectors such as the pharmaceutical industry (Jiménez-Barrionuevo et al., 2019; Kuratko et al., 2015). CE encompasses internal corporate venturing, strategic renewal, and innovation activities that allow firms to pursue entrepreneurial behavior while leveraging existing resources (Sharma & Chrisman, 1999). Evidence from annual report narratives of pharmaceutical firms indicates that when leaders credit positive performance to internal factors, they tend to deploy slack resources more readily to support corporate entrepreneurship (Jayamohan et al., 2024). At the individual level, innovative work behavior (IWB) has gained increasing attention as organizations seek to foster innovation from within (de Jong & den Hartog, 2010; Volery & Tarabashkina, 2021). IWB involves activities such as idea generation, promotion, and implementation, which are key behaviors that underpin successful organizational innovation and value creation (Sharmelly, 2017).

While both CE and IWB are well-researched constructs, the relationship between them, particularly how CE influences IWB at the managerial level, remains underexplored in industry-specific contexts (Kuratko et al., 2015; Sharmelly, 2017). Pharmaceutical firms, characterized by high regulatory oversight, rapid technological advancements, and intense global competition, require agile and innovative leadership to remain viable (Jiménez-Barrionuevo et al., 2019). However, limited empirical research has examined how CE mechanisms, such as management support, autonomy, rewards, and time allocation, translate into innovative behaviors among mid- to senior-level managers in this sector.

Recent studies have called for a deeper investigation into how organizational entrepreneurship practices foster individual innovation, particularly within the framework of the resource-based view (RBV) theory, which emphasizes the strategic value of intangible assets, such as human creativity and knowledge (Barney, 1991; Volery & Tarabashkina, 2021). Understanding how CE influences IWB can offer actionable insights for innovation-driven firms seeking to develop and retain entrepreneurial talent.

To address this gap, this study examines the predictive relationship between CE and IWB within North American pharmaceutical firms. Drawing on RBV theory, this study investigates how specific CE dimensions—management support, work discretion, rewards/reinforcement, time availability, and organizational boundaries—impact managers' innovative behaviors, thereby contributing to the broader literature on strategic innovation and organizational performance.

Background

Innovation is widely recognized as a key driver of competitive advantage, organizational growth, and value creation in contemporary business environments (Chesbrough, 2020; Hamel & Zanini, 2020). In rapidly evolving sectors such as pharmaceuticals, innovation is not only essential but often urgent, particularly during periods of global disruption such as the COVID-19 pandemic (Cohen et al., 2021; Von Krogh et al., 2020). The pandemic compelled firms to reconfigure drug development models and adopt agile processes (Cankurtaran & Beverland, 2020; Chesbrough, 2020; Von Krogh et al., 2020), and recent evidence suggests that big data analytics adoption is positively associated with corporate entrepreneurship in pharmaceutical firms (Al-ma'aitah, 2024).

In this context, corporate entrepreneurship (CE) has become increasingly important as a strategic framework enabling organizations to navigate complexity and drive innovation from within (Kuratko et al., 2015). CE encompasses corporate venturing, strategic renewal, and internal innovation activities aimed at enhancing firm adaptability and performance (Ireland et al., 2009; Jiménez-Barrionuevo et al., 2019). A growing body of empirical research has investigated the role of CE in improving organizational performance, often emphasizing entrepreneurial orientation, risk-taking, and innovation culture (Abosede et al., 2018; Hanci-Donmez & Karacay, 2019; Mukhtar et al., 2019).

Complementing these organizational-level approaches, innovative work behavior (IWB) has emerged as a critical construct that reflects the micro-level execution of innovation through employee actions, such as idea generation, promotion, and implementation (de Jong & den Hartog, 2010; Volery & Tarabashkina, 2021). Scholars have focused on factors supporting IWB, including leadership styles, psychological antecedents, and workplace culture (Afsar & Badir, 2017; Cai et al., 2018; Woods et al., 2018). IWB has been identified as a key contributor to sustained innovation performance and organizational success in uncertain business environments (Huang & Li, 2021; Kmieciak, 2020).

Despite extensive research on both CE and IWB, few studies have empirically examined the relationship between CE mechanisms and IWB, particularly within the pharmaceutical industry, where innovation is tightly coupled with regulatory constraints and high risk (Sharmelly, 2017; Kuratko et al., 2015). Moreover, the literature lacks clarity on which specific CE dimensions, such as management support, work discretion, or rewards systems, most significantly influence IWB among managers. Addressing this gap can help organizations strategically align their internal entrepreneurial initiatives with individual innovation efforts.

Guided by the resource-based view (RBV) theory, which emphasizes intangible resources such as knowledge and employee creativity as sources of competitive advantage (Barney, 1991), this study investigates the predictive relationship between CE and IWB among managers in North American pharmaceutical firms. By identifying the CE dimensions that most strongly influence IWB, the research contributes to both strategic innovation literature and practical efforts to foster innovation-capable workforces in high-stakes industries.

Statement of the Problem

The entrepreneurship research landscape has expanded significantly in recent decades, giving rise to emerging subfields, including social, sustainable, strategic, and corporate entrepreneurship (CE) (Kraus et al., 2020). Within this expansion, scholars have increasingly focused on the interrelationships between CE and broader organizational strategies, particularly as firms seek to enhance adaptability and innovation in dynamic markets (Secundo et al., 2020). CE refers to entrepreneurial activity within established organizations and typically encompasses corporate venturing, strategic renewal, and innovation processes (Sharma & Chrisman, 1999; Jiménez-Barrionuevo et al., 2019; Shankar & Shepherd, 2019).

Recent literature has explored how CE enables firms to source new ideas and enhance performance through venturing initiatives (Battistini et al., 2013; Roessler et al., 2019; van Rensburg & van Rensburg, 2015), while empirical studies have proposed frameworks to measure CE effectiveness (Agapie et al., 2018; Mukhtar et al., 2019; Platin & Ergun, 2017; Shin & Cho, 2020). Furthermore, entrepreneurial orientation (EO), a key dimension within CE, has been examined for its influence on organizational agility and innovation, as well as broader environmental and contextual factors (Dess & Lumpkin, 2005; Blackburn et al., 2017). However, conceptual ambiguity remains in defining CE dimensions and whether CE should be treated as a unidimensional or multidimensional construct.

Concurrently, innovative work behavior (IWB) has attracted growing attention for its role in fostering organizational innovation through individual employee actions (de Jong & den Hartog, 2010; Bos-Nehles, Renkema, et al., 2017). IWB is generally understood to include opportunity exploration, idea generation, idea promotion, and idea realization—actions that are critical to advancing innovation within firms (Spiegelaere et al., 2012; Widmann & Mulder, 2018). Although research has examined IWB antecedents such as leadership, motivation, and psychological climate, the relationship between CE and IWB, particularly at the managerial level, remains underexplored (Amir, 2015; De Clercq et al., 2016). Recent evidence supports the broader premise that internal conditions and leadership systems can shape IWB.

For instance, an Indian service-sector study found that several internal environment dimensions (management support, autonomy, rewards, and time availability) predicted IWB, with some relationships differing by gender (Tiwari, 2025). Complementing this, multi-level research suggests that executives' entrepreneurial emphasis may translate into employee innovative behavior when embedded in high-performance work practices that diffuse attention toward

innovation across the organization (Liu et al., 2024). However, when the CE–IWB relationship is examined, prior studies often emphasize entrepreneurial behavior broadly, without linking specific CE strategies to individual-level IWB outcomes. Additional studies reinforce the importance of leadership and human-resource systems in shaping IWB, including evidence linking digital leadership to IWB through career resilience (Burhan & Fatima, 2025) and high-commitment HRM practices to knowledge sharing and IWB (Thneibat, 2024).

This gap highlights the need for empirical research connecting CE practices with managers' innovative behavior, as managers serve as both strategic implementers and facilitators of innovation. Prior research suggests that IWB may serve as a behavioral manifestation of CE at the individual level (De Clercq et al., 2016; Segarra-Ciprés, 2025), yet few studies explicitly test this linkage. To address this, the present study investigates the predictive relationship between managerial perceptions of CE strategy and their engagement in IWB, offering insights into how strategic entrepreneurship translates into employee-level innovation (Goodale et al., 2011).

Method

This study employed a quantitative, non-experimental, predictive cross-sectional design to examine the relationship between corporate entrepreneurship (CE) dimensions and innovative work behavior (IWB) among managers in North American pharmaceutical firms. The design allowed for the examination of statistical associations between five continuous independent variables—management support (MS), work discretion (WD), rewards/reinforcement (RR), time availability (TA), and organizational boundaries (OB)—and a continuous dependent variable, IWB, without manipulation of the research environment (Edmonds & Kennedy, 2016; Pyrczak & Oh, 2018). The primary research question guiding this empirical investigation was:

RQ: To what extent is there a predictive relationship between corporate entrepreneurship dimensions and innovative work behaviors?

To address this question, five directional hypotheses were tested using multiple linear regression (MLR). Each hypothesis was structured to determine whether individual CE dimensions significantly predicted variation in IWB:

$H1_o$: There is no statistical predictive relationship between management support for CE and IWB.

$H1_a$: There is a statistical predictive relationship between management support for CE and IWB.

$H2_o$: There is no statistical predictive relationship between work discretion and autonomy and IWB.

$H2_a$: There is a statistical predictive relationship between work discretion and autonomy and IWB.

$H3_o$: There is no statistical predictive relationship between rewards/reinforcement and IWB.

$H3_a$: There is a statistical predictive relationship between rewards/reinforcement and IWB.

$H4_o$: There is no statistical predictive relationship between time availability and IWB.

$H4_a$: There is a statistical predictive relationship between time availability and IWB.

$H5_o$: There is no statistical predictive relationship between organizational boundaries and IWB.

$H5_a$: There is a statistical predictive relationship between organizational boundaries and IWB.

Target Population and Sample

The target population comprised manager-level and above individuals in the pharmaceutical industry (NAICS Code 325400). Within this industry, approximately 39,000 individuals perform management occupations, ranging from chief executive officers to functional managers in human resources, sales and marketing, and training and development (U.S. Bureau of Labor Statistics, 2021). Scholars have posited that individuals at the managerial level are instrumental to driving CE strategy within firms (Kuratko et al., 2015), making this population theoretically appropriate for the present study.

The sample comprised self-identified manager-level and above individuals employed at North American pharmaceutical companies. Inclusion criteria required that respondents be at least 21 years of age, self-identified as manager level or above, employed full-time at a North American pharmaceutical company, and resident in North America. Participants were identified through the Qualtrics Research Services team and were required to be registered with Qualtrics.

Power Analysis

An a priori power analysis was conducted using G*Power version 3.1.9.6 to determine the minimum sample size required for the study. The analysis used the following parameters: five predictor variables, a medium effect size ($f^2 = 0.15$), significance level $\alpha = .05$, and statistical power $(1 - \beta) = 0.80$. The results indicated a minimum required sample size of 92 participants, with actual power of 0.804 (see Table 1). To account for potential incomplete or unusable responses, Qualtrics gathered 110 responses, yielding a final analytic sample of 92 complete cases after data cleaning.

Table 1

*Power Analysis and Parameters Using G*Power Version 3.1.9.6*

Parameter	Value
Input	
Effect size f^2	0.15
α error probability	.05
Power (1 − β error probability)	.80
Number of predictors	5
Output	
Noncentrality parameter λ	13.800
Critical F	2.321
Numerator df	5
Denominator df	86
Total sample size	92
Actual power	0.804

Note. *F*-tests, linear multiple regression, fixed model, R^2 deviation from zero.

Instruments

The survey instrument consisted of three sections. The first section gathered demographic data, including age, gender, years of management experience, years with current employer, level of education, functional job title, and department.

Corporate Entrepreneurship Assessment Instrument

The second section measured CE using the 48-item Corporate Entrepreneurship Assessment Instrument (CEAI; Hornsby et al., 2013), which captures five CE dimensions on a 5-point Likert-type scale. The CEAI was developed to understand the key internal factors that spur middle managers to stimulate corporate entrepreneurship. The validation methods used were exploratory and confirmatory factor analyses, and the internal consistency of each resulting factor was determined (Hornsby et al., 2002). Cronbach's alpha values for the five factors were .89 (management support), .87 (work discretion), .75 (rewards/reinforcement), .77 (time availability), and .69 (organizational boundaries), respectively (Hornsby et al., 2002). The factor and reliability analysis confirmed that the five-factor solution is stable and reliable. Additional empirical research has supported the validity of the CEAI (Agapie et al., 2018; Hornsby et al., 2013; Kassa & Raju, 2015).

Innovative Work Behavior Scale

The third section assessed IWB using a 10-item scale developed by de Jong and den Hartog (2010), where respondents rated the frequency of their innovative behaviors on a 5-point Likert-type scale (Volery & Tarabashkina, 2021). The IWB survey measures four dimensions: idea exploration, idea generation, idea promotion, and idea realization (Widmann & Mulder, 2018). Reliability was good for all IWB dimensions ($\alpha > .70$, mean correlation > .40, and item-rest correlations > .30; de Jong & den Hartog, 2010). Confirmatory factor analysis of the four-factor model indicated good fit: $\chi^2/df = 4.63$ (parsimonious fit), GFI = 0.97 and RMSEA = 0.06 (absolute fit), TLI = 0.98 and NFI = 0.98 (incremental fit), $p < .001$ (de Jong & den Hartog, 2010). Permission was obtained from the authors of both instruments prior to data collection.

Table 2

Instrument Reliability: Cronbach's Alpha Coefficients

Instrument	Scale/Dimension	α
CEAI	Management support (MS)	.89
	Work discretion (WD)	.87
	Rewards/reinforcement (RR)	.75
	Time availability (TA)	.77
	Organizational boundaries (OB)	.69
IWB	Innovative work behavior (composite)	> .70

Note. CEAI = Corporate Entrepreneurship Assessment Instrument (Hornsby et al., 2002). IWB = Innovative Work Behavior scale (de Jong & den Hartog, 2010). Cronbach's alpha values of .70 and above are considered acceptable (Heale & Twycross, 2015).

Data Collection and Procedures

Data were collected through an online survey hosted on Qualtrics using probabilistic random sampling to minimize selection bias and enhance representativeness (Field, 2018; Sekaran & Bougie, 2016). The survey was distributed anonymously, and respondents were informed that participation was voluntary and that no personally identifying information would be collected.

Upon collection, responses were reviewed within Qualtrics using the Data and Analysis function to filter and classify responses. Cases with incomplete survey responses were deleted (O'Gorman & MacIntosh, 2014). The primary goal of this step was to remove noise and to clean outliers from the dataset. The cleaned data were exported to a Microsoft Excel spreadsheet and imported into SPSS for analysis.

Data Analysis

Multiple linear regression (MLR) was used to evaluate the predictive power of each CE dimension on IWB. This method was selected for its suitability for assessing relationships among multiple continuous independent variables and a single continuous dependent variable (Sekaran & Bougie, 2016; Field, 2018). Because the survey comprised 58 items measuring the five CE dimensions and IWB, the raw data did not include composite scores for each variable. Using the transform function within SPSS, six target variables were constructed to calculate the arithmetic mean for each CE dimension (MS, WD, RR, TA, OB) and IWB (George & Mallery, 2018). These computed variables served as the basis for all subsequent regression analyses.

Assumption Testing

Prior to conducting the regression analysis, eight standard assumptions for MLR were evaluated (Field, 2018; Laerd Statistics, 2021), including continuity of variables, independence of observations (Durbin–Watson statistic), linearity (scatterplot inspection), homoscedasticity, multicollinearity (tolerance and VIF values), absence of significant outliers (casewise diagnostics and Cook's distance), and normality of residuals. All assumptions were satisfactorily met, permitting the use of MLR.

Results

This section presents the results of the multiple linear regression (MLR) analysis examining the relationship between five corporate entrepreneurship (CE) dimensions and innovative work behavior (IWB) among 92 manager-level and above respondents in the North American pharmaceutical industry.

Overall Model Significance

The overall regression model was statistically significant, $F(5, 86) = 13.863$, $p < .001$, accounting for 44.6% of the variance in IWB ($R^2 = .446$, Adjusted $R^2 = .414$). The adjusted R^2 value of .414 indicates that after accounting for the number of predictors in the model, the five CE dimensions collectively explained approximately 41.4% of the variability in managers' innovative work behavior. This represents a substantial proportion of explained variance, suggesting that the CE dimensions, taken together, are meaningful predictors of IWB in this context (see Figure 1).

Regression Coefficients

The regression coefficients were evaluated by testing the null and alternative hypotheses at a significance level of α = .05. Table 3 presents the full regression output, including unstandardized and standardized coefficients, significance tests, correlations, and collinearity diagnostics.

Table 3

Multiple Linear Regression Coefficients Predicting Innovative Work Behavior

Predictor	B	*SE*	β	*t*	*p*	*r*	*pr*	*sr*	Tolerance	VIF
Constant	1.814	0.439	—	4.131	< .001	—	—	—	—	—
MS	0.616	0.143	.690	4.303	< .001	.638	.421	.345	.250	3.994
WD	−0.093	0.125	−.090	−0.744	.459	.412	−.080	−.060	.437	2.287
RR	−0.005	0.125	−.005	−0.040	.968	.461	−.004	−.003	.379	2.635
TA	0.230	0.140	.179	1.646	.103	.485	.175	.132	.544	1.838
OB	−0.199	0.113	−.180	−1.769	.080	.229	−.187	−.142	.621	1.611

Note. $N = 92$. Dependent variable = innovative work behavior. B = unstandardized coefficient; SE = standard error; β = standardized coefficient; *r* = zero-order correlation; *pr* = partial correlation; *sr* = semi-partial correlation; VIF = variance inflation factor. MS = management support; WD = work discretion; RR = rewards/reinforcement; TA = time availability; OB = organizational boundaries. $R^2 = .446$, Adjusted $R^2 = .414$, $F(5, 86) = 13.863$, $p < .001$.

Of the five independent variables, only management support emerged as a statistically significant predictor (β = .690, $t(86) = 4.303$, $p < .001$), indicating that managerial perceptions of support for entrepreneurial activities are strongly associated with increased engagement in innovative behavior. The remaining predictors were not statistically significant: work discretion (β = −.090, $p = .459$), rewards/reinforcement (β = −.005, $p = .968$), time availability (β = .179, $p = .103$), and organizational boundaries (β = −.180, $p = .080$). While time availability and organizational boundaries approached significance, they did not meet the $p < .05$ threshold.

Hypothesis Testing Results

Based on the regression analysis, the following hypothesis decisions were made. The null hypothesis $H1_0$ was rejected because $p < .001$ was less than α = .05, confirming that management support is a statistically significant predictor of IWB. The null hypotheses $H2_0$ ($p = .459$), $H3_0$ ($p = .968$), $H4_0$ ($p = .103$), and $H5_0$ ($p = .080$) were not rejected, indicating that work discretion, rewards/reinforcement, time availability, and organizational boundaries were not statistically significant predictors of IWB in this model.

Table 4
Summary of Hypothesis Testing Results

Hypothesis	Predictor	*p*	Decision
H1	Management support	< .001	Rejected (significant)
H2	Work discretion	.459	Not rejected
H3	Rewards/reinforcement	.968	Not rejected
H4	Time availability	.103	Not rejected
H5	Organizational boundaries	.080	Not rejected

Note. Significance level α = .05. "Rejected" indicates the null hypothesis of no predictive relationship was rejected in favor of the alternative hypothesis.

Zero-Order Correlations and Multicollinearity

An important observation from the regression output concerns the discrepancy between zero-order correlations and the regression weights. All five CE dimensions showed positive bivariate correlations with IWB: MS (r = .638), TA (r = .485), RR (r = .461), WD (r = .412), and OB (r = .229). These bivariate relationships suggest that each dimension has some association with IWB in isolation; however, when entered simultaneously into the regression model, only MS retained statistical significance (see Figure 2). This pattern indicates substantial shared variance among the CE dimensions, consistent with VIF values ranging from 1.611 to 3.994, which, while below the threshold of concern (VIF < 10; Field, 2018), indicate moderate multicollinearity. All tolerance values exceeded the 0.2 threshold (range: 0.250-0.621), further confirming that multicollinearity did not violate the regression assumptions.

Unique Variance Contributions

The squared semi-partial (part) correlations provide insight into the unique variance each predictor contributes to the model beyond the other predictors. Management support accounted for the largest unique contribution to IWB variance (sr^2 = .119, or 11.9%), followed by organizational boundaries (sr^2 = .020, or 2.0%), time availability (sr^2 = .017, or 1.7%), work discretion (sr^2 = .004, or 0.4%), and rewards/reinforcement (sr^2 < .001). These values indicate that the majority of the total explained variance (R^2 = .446) is shared among the CE dimensions rather than uniquely attributable to individual predictors, underscoring the importance of management support as the primary conduit through which CE practices influence IWB (see Figure 3).

Interpretation of Regression Coefficients

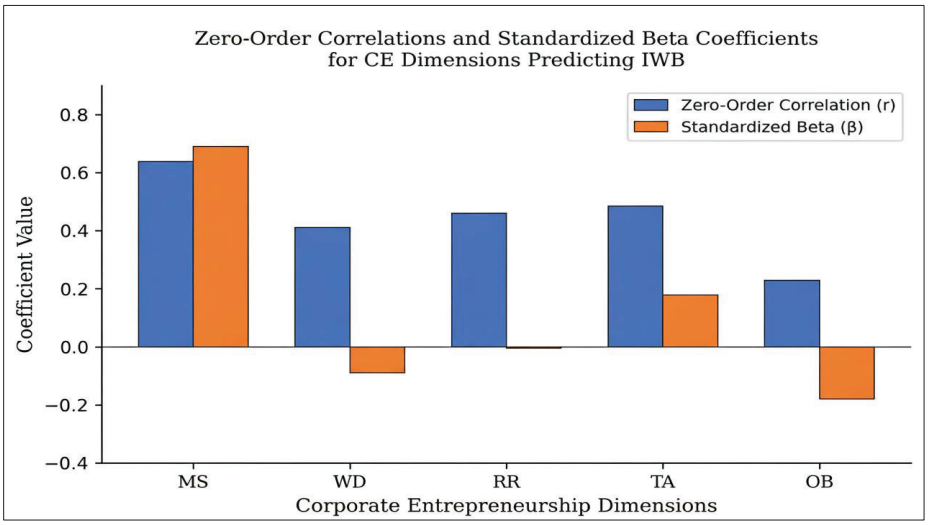
The unstandardized regression weights for MS (B = 0.616) and TA (B = 0.230) were positive, indicating that a one-point increase in management support would predict a 0.616-point increase in IWB scores, while a one-point increase in time availability would predict a 0.230-point increase. The regression weights for WD (B = −0.093), RR (B = −0.005), and OB (B = −0.199) were negative. However, given the nonsignificant p values for these predictors, the negative weights should be interpreted with caution and may reflect suppression effects due to shared variance among the CE dimensions rather than true negative relationships with IWB (Yockey, 2017).

Comparison With Prior Research

These findings align partially with prior research using the CEAI dimensions. Ravjee and Mamabolo (2019) found that MS, RR, and TA significantly predicted service innovation in financial services, while Umrani, Mahmood et al. (2016) reported MS, OB, and RR had significant relationships with business performance. Additionally, Platin and Ergun (2017) observed a significant link between WD and sales growth. In contrast, this study found that MS was the sole significant predictor of IWB. Although earlier studies (e.g., Khoza et al., 2017) supported the presence of MS, WD, RR, and OB in small and medium enterprises, these constructs did not independently predict innovative behavior in this pharmaceutical sample.

Figure 1

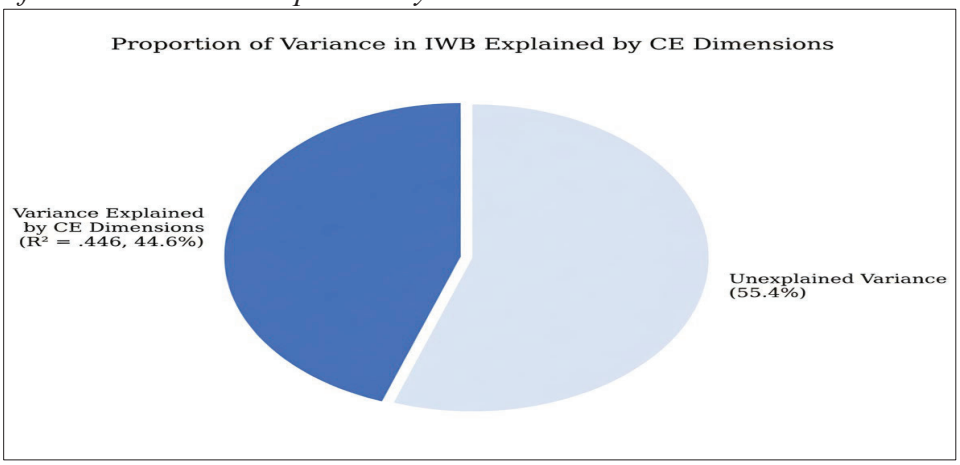
Zero-Order Correlations and Standardized Beta Coefficients for CE Dimensions Predicting IWB



Note. MS = management support; WD = work discretion; RR = rewards/reinforcement; TA = time availability; OB = organizational boundaries. Zero-order correlations represent bivariate associations; standardized betas represent unique predictive effects controlling for all other CE dimensions. *$p < .001$.

Figure 2

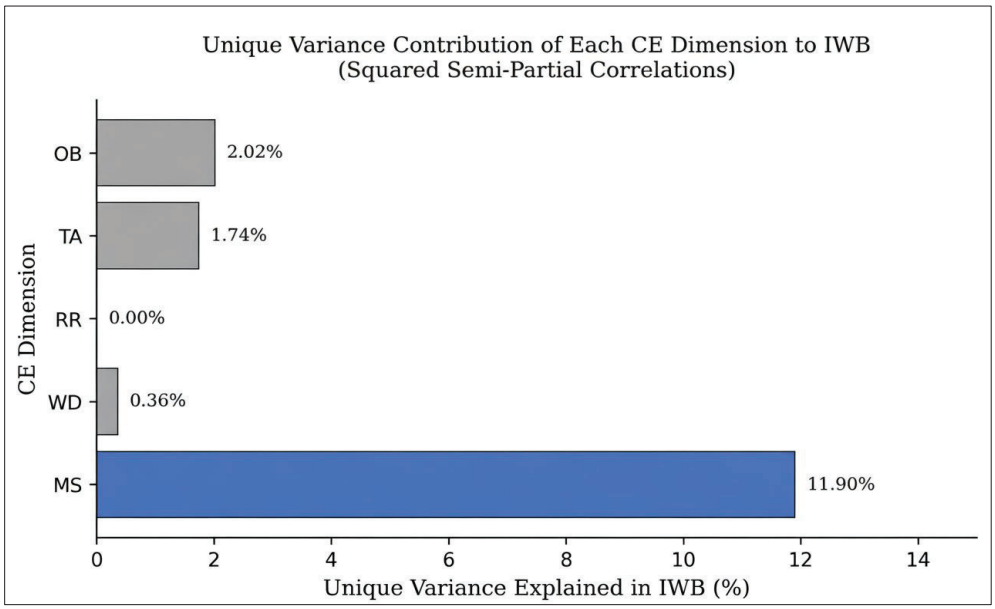
Proportion of Variance in IWB Explained by CE Dimensions



Note. The five CE dimensions collectively explained 44.6% of the variance in innovative work behavior (R^2 = .446, Adjusted R^2 = .414).

Figure 3

Unique Variance Contribution of Each CE Dimension to IWB (Squared Semi-Partial Correlations)



Note. Values represent sr^2 (squared semi-partial correlations), indicating the unique proportion of IWB variance attributable to each CE dimension after controlling for all other predictors. Management support (highlighted) accounts for the largest unique contribution (11.90%). The substantial difference between total R^2 (.446) and the sum of unique contributions (≈13.6%) indicates that a large proportion of explained variance is shared among the CE dimensions.

Discussion

This study extends the understanding of how corporate entrepreneurship (CE) practices influence managers' innovative work behavior (IWB) in North American pharmaceutical firms. Grounded in the resource-based view (RBV), the findings indicate that among the five CE dimensions examined, only management support significantly predicted IWB. This highlights the central role of leadership in creating an internal environment that fosters innovation.

Management Support as the Primary Predictor

While CE is widely recognized as a multidimensional construct (Hornsby et al., 2013; Sharma & Chrisman, 1999), the current findings suggest that not all dimensions carry equal weight in predicting individual-level innovation. Management support emerged as the most influential factor, underscoring the importance of visible leadership behaviors, such as encouraging new ideas, allocating resources, and signaling risk tolerance, that reinforce entrepreneurial activity. This finding is consistent with evidence from Brazilian public universities showing that management support and autonomy are associated with innovative behavior, whereas reward perceptions may be less influential in more entrepreneurship-oriented settings (Moraes et al., 2023).

From an RBV perspective, the finding that management support is the sole significant predictor reinforces the argument that intangible organizational resources, specifically the leadership behaviors that constitute management support for entrepreneurship, function as rare,

valuable, inimitable, and non-substitutable resources that drive competitive advantage through individual-level innovation (Barney, 1991). This aligns with the broader RBV premise that a firm's sustained competitive advantage derives not merely from structural arrangements but from the quality and deployment of its human and social capital.

Nonsignificant Findings and Shared Variance

In contrast, the remaining CE dimensions, work discretion, rewards/reinforcement, time availability, and organizational boundaries, did not significantly predict IWB. These results diverge from studies in other sectors where these factors have been more impactful (e.g., Ravjee & Mamabolo, 2019; Umrani et al., 2016; Platin & Ergun, 2017). Variation across contexts is also evident in service-sector research, where work discretion, time availability, and rewards have been found to predict IWB, while management support and organizational boundaries were non-significant (Tiwari, 2025).

The discrepancy between zero-order correlations and regression weights is noteworthy: all five CE dimensions demonstrated positive bivariate correlations with IWB, yet only MS retained significance in the full model. This pattern suggests that the predictive influence of WD, RR, TA, and OB on IWB is largely subsumed by management support, indicating that MS serves as the primary conduit through which CE practices influence innovative behavior.

Industry-Specific Context

One possible explanation for the dominance of management support is that the pharmaceutical industry operates in a highly regulated, risk-sensitive environment where managers may have limited discretion and time regardless of organizational policy. Under these conditions, the active encouragement and resource allocation signaled by management support may be the most salient factor enabling managers to engage in innovative behavior, while the other dimensions may be structurally constrained in ways that limit their independent influence.

Bridging the CE-IWB Literature Gap

Amir (2015) highlighted that scholars rarely conduct empirical research on the relationship between CE and innovation constructs at the individual level; when they have, the focus has typically been on entrepreneurial behavior rather than IWB specifically. De Clercq et al. (2016) posited that employees' IWBs constitute part of the building blocks for CE. The present findings advance this line of inquiry by demonstrating empirically that the management support dimension of CE has a direct predictive relationship with IWB, thereby confirming a specific pathway through which organizational CE practices translate into individual innovative action. These findings reinforce the notion that internal mechanisms, particularly leadership support, are critical in unlocking the creative potential of managerial staff. They also suggest that while structural levers matter, they must be complemented by consistent cultural signals that innovation is valued and supported.

Implications and Conclusion

Contribution to the Field

The practical urgency of this research is underscored by the disparity in research investment: businesses have collectively spent more than $3.5 billion on life science and engineering research, while only a scant $51 million has been directed toward management research (Hamel & Zanini, 2020). Bos-Nehles, Renkema et al. (2017) noted that there exists a dearth of knowledge regarding

how innovation can be fostered at the individual level. The present study contributes to closing this gap by providing leaders and managers with empirical evidence on the predictive relationship between CE and IWB, thereby informing the design of innovation training and development programs. CE research has evolved over the past four decades to become a business strategy that guides firms' efforts to innovate and compete in a global economy (Kuratko et al., 2015). The present study contributes to this trajectory by bridging the CE and IWB literatures at the individual level of analysis, an intersection that remains relatively underexplored despite the recognized importance of both constructs.

Practical Implications

This study offers actionable insights for leaders seeking to build innovation capacity through corporate entrepreneurship. While firms often invest in reward systems and decentralized structures, this research suggests that management support is the most immediate and impactful pathway to increasing innovative work behavior. Managers who actively encourage experimentation, recognize innovative efforts, and allocate time for idea development can drive meaningful change at the employee level. Related evidence suggests that HRM systems emphasizing high commitment may support IWB by strengthening knowledge sharing, pointing to complementary people-management levers leaders can use alongside managerial support (Thneibat, 2024).

Specifically, practitioners should consider three actions. First, senior leadership should develop visible mechanisms for signaling management support, including dedicated innovation budgets and explicit tolerance for calculated risk-taking. Second, although WD, RR, TA, and OB did not independently predict IWB, practitioners should not neglect these dimensions, as the bivariate correlations suggest all five contribute to an entrepreneurial climate; management support may serve as the linchpin that activates the effects of the other dimensions. Third, organizations should invest in leadership development programs that equip managers to create supportive environments where their direct reports feel empowered to innovate.

Theoretical Implications

From a theoretical standpoint, the findings support the RBV framework by illustrating how intangible organizational resources, such as leadership and support structures, can influence the deployment of individual-level innovation. By identifying management support as the primary CE dimension predicting IWB in the pharmaceutical sector, the study offers a more granular understanding of how CE practices translate into the micro-level behaviors that ultimately drive organizational innovation. The study contributes to a relatively under-researched intersection of CE and IWB, highlighting a pathway for firms to leverage internal capabilities to sustain a competitive advantage.

Limitations and Future Research

That said, the other CE dimensions should not be dismissed. Their lack of significance in this study may be context-specific, reflecting post-pandemic constraints or organizational inertia. Given that time availability and organizational boundaries approached conventional significance thresholds, future studies with larger samples should examine whether these dimensions exert smaller but meaningful effects in regulated contexts. Practitioners should remain mindful of CE's multidimensional nature and consider integrating these elements more strategically into their innovative initiatives.

To address potential standard-method variance, future research should employ multilevel, multisource designs that collect CE climate perceptions from managers, obtain IWB ratings from supervisors or peers, and track innovation outcomes over time (Liu et al., 2024). Additional theoretical perspectives, such as dynamic capabilities theory (Teece et al., 1997) and self-determination theory (Deci & Ryan, 2000), could further illuminate these relationships.

Future studies could benefit from dyadic designs collecting data from both managers and subordinates, replication in other industries or geographic regions, and longitudinal designs examining how shifts in CE practices affect the sustainability of IWB in post-pandemic organizational contexts.

References

Abosede, J. A., Fayose, J., & Eze, B. U. (2018). Corporate entrepreneurship and international performance of Nigerian banks. *Journal of Economics and Management, 32*(2), 5–17. https://doi.org/10.22367/jem.2018.32.01

Afsar, B., & Badir, Y. (2017). Workplace spirituality, perceived organizational support, and innovative work behavior. *Journal of Workplace Learning, 29*(2), 95–109. https://doi.org/10.1108/JWL-11-2015-0086

Agapie, A., Vizitiu, C., Cristache, S. E., Nastase, M., Craciun, L., & Molanescu, A. G. (2018). Analysis of corporate entrepreneurship in public R&D institutions. *Sustainability, 10*(7), 2297. https://doi.org/10.3390/su10072297

Al-ma'aitah, M. A. (2024). The drivers of big data analytics adoption and its impact on corporate entrepreneurship. *Journal of Internet Services and Information Security, 14*(3), 145–168. https://doi.org/10.58346/JISIS.2024.I2.010

Amir, M. T. (2015). Entrepreneurial behavior and innovative behavior: A conceptual clarification. *Asian Journal of Technology Management, 8*(2), 160–171. https://doi.org/10.12695/ajtm.2015.8.2.7

Ashal, N., Masa'deh, R., & Twaissi, N. M. (2023). The impact of learning organization on intrapreneurship: The case of Jordanian pharmaceutics. *Sustainability, 15*(16), 12211. https://doi.org/10.3390/su151612211

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Battistini, B., Hacklin, F., & Baschera, P. (2013). The state of corporate venturing: Insights from a global study. *Research-Technology Management, 56*(1), 31–39. https://doi.org/10.5437/08956308X5601077

Blackburn, R., De Clercq, D., & Heinonen, J. (2017). *The SAGE handbook of small business and entrepreneurship* (1st ed.). SAGE. https://doi.org/10.4135/9781473984080

Bos-Nehles, A., Renkema, M., & Janssen, M. (2017). HRM and innovative work behaviour: A systematic literature review. *Personnel Review, 46*(7), 1228–1253. https://doi.org/10.1108/PR-09-2016-0257

Burhan, M., & Fatima, T. (2025). Digital leadership and innovative work behavior in pharmaceutical multinationals. [Complete citation details needed].

Cai, W., Lysova, E. I., Khapova, S. N., & Bossink, B. A. G. (2018). Servant leadership and innovative work behavior in Chinese high-tech firms. *Frontiers in Psychology, 9*, 1767. https://doi.org/10.3389/fpsyg.2018.01767

Cankurtaran, P., & Beverland, M. B. (2020). Using design thinking to respond to crises: B2B lessons from the 2020 COVID-19 pandemic. *Industrial Marketing Management, 88*, 255–260. https://doi.org/10.1016/j.indmarman.2020.05.030

Chesbrough, H. (2020). To recover faster from COVID-19, open up: Managerial implications from an open innovation perspective. *Industrial Marketing Management, 88*, 410–413. https://doi.org/10.1016/j.indmarman.2020.04.010

Cohen, D., Furstenthal, L., & Jansen, L. (2021, May 5). The essentials of healthcare innovation. *McKinsey Insights*.

DataUSA Org. (2021). *Pharmaceutical and medicine manufacturing*. https://datausa.io

De Clercq, D., Dimov, D., & Belausteguigoitia, I. (2016). Perceptions of adverse work conditions and innovative behavior. *Entrepreneurship Theory and Practice, 40*(3), 515–542. https://doi.org/10.1111/etap.12121

De Jong, J., & Den Hartog, D. (2010). Measuring innovative work behaviour. *Creativity and Innovation Management, 19*(1), 23–36. https://doi.org/10.1111/j.1467-8691.2010.00547.x

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Dess, G. G., & Lumpkin, G. T. (2005). The role of entrepreneurial orientation in stimulating effective corporate entrepreneurship. *The Academy of Management Executive, 19*(1), 147–156. https://doi.org/10.5465/ame.2005.15841975

Edmonds, W. A., & Kennedy, T. D. (2016). *An applied guide to research designs* (2nd ed.). SAGE. https://doi.org/10.4135/9781071802779

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE.

George, D., & Mallery, P. (2018). *IBM SPSS statistics 25 step by step: A simple guide and reference* (15th ed.). Routledge.

Goodale, J. C., Kuratko, D. F., Hornsby, J. S., & Covin, J. G. (2011). Operations management and corporate entrepreneurship. *Journal of Operations Management, 29*(1), 116–127. https://doi.org/10.1016/j.jom.2010.07.005

Hamel, G., & Zanini, M. (2020). *Humanocracy: Creating organizations as amazing as the people inside them*. Harvard Business Review Press.

Hanci-Donmez, T., & Karacay, G. (2019). High-performance human resource practices and firm performance. *International Journal of Organizational Leadership, 8*(1), 63–77. https://doi.org/10.33844/ijol.2019.60358

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing, 18*(3), 66–67.

Hornsby, J. S., Kuratko, D. F., Holt, D. T., & Wales, W. J. (2013). Assessing a measurement of organizational preparedness for corporate entrepreneurship. *Journal of Product Innovation Management, 30*(5), 937–955. https://doi.org/10.1111/jpim.12038

Hornsby, J. S., Kuratko, D. F., & Zahra, S. A. (2002). Middle managers' perception of the internal environment for corporate entrepreneurship. *Journal of Business Venturing, 17*(3), 253–273. https://doi.org/10.1016/S0883-9026(00)00059-8

Huang, H., & Li, F. (2021). Innovation climate, knowledge management, and innovative work behavior in small software companies. *Social Behavior and Personality, 49*(4), 1–17. https://doi.org/10.2224/sbp.9780

Ireland, R. D., Covin, J. G., & Kuratko, D. F. (2009). Conceptualizing corporate entrepreneurship strategy. *Entrepreneurship Theory and Practice, 33*(1), 19–46. https://doi.org/10.1111/j.1540-6520.2008.00279.x

Jayamohan, P., Moss, T., McKelvie, A., & Hyman, M. (2024). The influence of managerial attributions on corporate entrepreneurship. *Journal of Management & Organization, 30*(1), 18–39. https://doi.org/10.1017/jmo.2022.7

Jiménez-Barrionuevo, M. M., Molina, L. M., & Garcia-Morales, V. J. (2019). Combined influence of absorptive capacity and corporate entrepreneurship on performance. *Sustainability, 11*(11), 3034. https://doi.org/10.3390/su11113034

Kassa, A. G., & Raju, R. S. (2015). Investigating the relationship between corporate entrepreneurship and employee engagement. *Journal of Entrepreneurship in Emerging Economies, 7*(2), 148–167.

Khoza, R., Groenewald, D., & Schachtebeck, C. (2017). Corporate entrepreneurial climate: An investigation of South African accounting small and medium-sized enterprises. *Journal of Accounting and Management, 7*(3).

Kmieciak, R. (2020). Critical reflection and innovative work behavior. *Personnel Review, 50*(2), 439–459. https://doi.org/10.1108/PR-10-2018-0406

Kraus, S., Kailer, N., Dorfer, J., & Jones, P. (2020). Open innovation in (young) SMEs. *International Journal of Entrepreneurship and Innovation, 21*(1), 47–59. https://doi.org/10.1177/1465750319840778

Kuratko, D. F., Hornsby, J. S., & Hayton, J. (2015). Corporate entrepreneurship: The innovative challenge for a new global economic reality. *Small Business Economics, 45*(2), 245–253. https://doi.org/10.1007/s11187-015-9630-8

Laerd Statistics. (2021). *Multiple regression using SPSS statistics*. https://statistics.laerd.com

Liu, Y., Xi, M., & Wales, W. J. (2024). CEO entrepreneurial orientation, human resource management systems, and employee innovative behavior. *Strategic Entrepreneurship Journal, 18*(2), 388–413. https://doi.org/10.1002/sej.1488

Moraes, G. H. S. M. de, Spers, E. E., Mendes, L., & Silva, H. M. R. da. (2023). Corporate entrepreneurship at the university. *Journal of Entrepreneurship in Emerging Economies, 15*(2), 404–424. https://doi.org/10.1108/JEEE-07-2021-0287

Mukhtar, M. A., Baloch, N. A., & Khattak, S. R. (2019). Dynamic capability and firm performance. *Journal of Managerial Sciences, 13*(3), 119–128.

O'Gorman, K. D., & MacIntosh, R. (2014). *Research methods for business and management* (2nd ed.). Goodfellow Publishers.

Platin, N., & Ergun, H. S. (2017). The relationship between entrepreneurial orientation and performance. *Business and Management Studies, 3*(2), 78. https://doi.org/10.11114/bms.v3i2.2408

Pyrczak, F., & Oh, D. M. (2018). *Types of empirical research* (7th ed.). Routledge. https://doi.org/10.4324/9781315179803-4

Ravjee, B., & Mamabolo, M. A. (2019). The impact of corporate entrepreneurship on service innovation. *Southern African Journal of Entrepreneurship and Small Business Management, 11*(1), Article a155. https://doi.org/10.4102/sajesbm.v11i1.155

Reijonen, H., Hirvonen, S., Nagy, G., Laukkanen, T., & Gabrielsson, M. (2015). The impact of entrepreneurial orientation on B2B branding and business growth. *Industrial Marketing Management, 51*, 35–46. https://doi.org/10.1016/j.indmarman.2015.04.016

Roessler, M., Velamuri, V. K., & Schneckenberg, D. (2019). Corporate entrepreneurship initiatives: A systematic literature review and research agenda. *R&D Management, 49*(4), 509–533. https://doi.org/10.1111/radm.12340

Romasanta, A. K. S., van der Meel, R., & Schiffelers, R. M. (2020). Nanomedicine meets clinical research: Regulatory challenges and opportunities. *Pharmaceutical Research, 37*, 196.

Secundo, G., Vecchio, P. D., & Mele, G. (2020). Social media for entrepreneurship: Myth or opportunity? *International Journal of Entrepreneurial Behaviour & Research, 27*(1), 149–177. https://doi.org/10.1108/IJEBR-07-2020-0453

Segarra-Ciprés, M., Escrig-Tena, A. B., & Badoiu, G.-A. (2025). Stakeholders as enablers of corporate entrepreneurship. *European Research on Management and Business Economics, 31*(3), Article 100292. https://doi.org/10.1016/j.iedeen.2025.100292

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). Wiley.

Shankar, R. K., & Shepherd, D. A. (2019). Accelerating strategic fit or venture emergence: Different paths adopted by corporate accelerators. *Journal of Business Venturing, 34*(5), 105886. https://doi.org/10.1016/j.jbusvent.2018.06.004

Sharma, P., & Chrisman, J. J. (1999). Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship. *Entrepreneurship Theory and Practice, 23*(3), 11–28. https://doi.org/10.1177/104225879902300302

Sharmelly, R. (2017). Crafting a winning innovation strategy. *Strategic Direction, 33*(3), 8–11. https://doi.org/10.1108/SD-11-2016-0151

Shin, B. Y., & Cho, K. T. (2020). The evolutionary model of corporate entrepreneurship. *Sustainability, 12*, 9042. https://doi.org/10.3390/su12219042

Spiegelaere, S. D., Gyes, G. V., Van Thillo, T., & Van Hootegem, G. (2012). Innovative work behavior: Concept and measurement. In *ISPIM Conference Proceedings* (p. 1). ISPIM.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Thneibat, M. M. (2024). The impact of high commitment work practices on radical innovation. *International Journal of Productivity and Performance Management, 73*(7), 2329–2363. https://doi.org/10.1108/IJPPM-01-2023-0036

Tiwari, S., Asma, A., Tiwari, P., & Singh, B. K. (2025). Impact of internal environment on innovative work behaviour. *International Journal of Organizational Analysis, 33*(10), 3663–3682. https://doi.org/10.1108/IJOA-08-2024-4771

Umrani, W. A., Mahmood, R., & Ahmed, U. (2016). Unveiling the direct effect of corporate entrepreneurship's dimensions on business performance. *Studies in Business and Economics, 11*(1), 181–195. https://doi.org/10.1515/sbe-2016-0015

U.S. Bureau of Labor Statistics. (2021). *Occupational employment and wages*. https://www.bls.gov

USAFacts. (2021). *Educational attainment in the United States*. https://usafacts.org

Van Rensburg, D. J., & Van Rensburg, D. J. (2015). In-sourcing disruptive brands as a corporate entrepreneurship strategy. *International Entrepreneurship and Management Journal, 11*(4), 769–792. https://doi.org/10.1007/s11365-014-0309-4