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Review Article

"A Python-powered Investigation of Ambidextrous Leadership: Its Mediation Role between Firm Performance and Organizational Innovation"

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ABSTRACT

This research examines how ambidextrous leadership mediates company success and organizational innovation in South Indian IT. Innovation and organizational success depend on ambidextrous leadership, which balances exploration with exploitation. This study uses current literature to examine how ambidextrous leadership affects business performance and organizational creativity. The research also explores how organizational innovation mediates the ambidextrous leadership-firm performance link. The study seeks to investigate the South Indian IT market and how ambidextrous leadership promotes innovation and business success. The outcomes of this research may help South Indian IT industry executives and policymakers use ambidextrous leadership to foster organizational innovation and retain competitive advantage.

Keywords: Ambidextrous leadership, Firm performance, Organizational innovation, Mediation effect, IT sector, Exploration and exploitation, Python Analysis

1. Introduction

To compete in today's constantly changing business environment, Gibson and Birkinshaw (2004) and Jansen et al. (2009) claim that IT firms must simultaneously undertake exploration and exploitation activities. Ambidextrous leadership, which entails balancing competing tendencies, has become crucial in promoting organizational innovation and enhancing business performance.

The concept of organizational ambidexterity, which emphasizes the simultaneous pursuit of exploration (looking for new possibilities and innovation) and exploitation (maximizing current resources and processes), provides the foundation for ambidextrous leadership (March 1991). Ambidextrous leaders are essential to foster exploration and exploitation within their teams and organizations (Gupta et al., 2006).

The significance of ambidextrous leadership in affecting business performance and encouraging organizational innovation has been recognized by prior studies. Wang et al. (2014) discovered, for instance, that ambidextrous leadership has a beneficial impact on the creation and application of creative ideas inside an organization, which in turn has a favorable impact on company performance. They concluded that ambidextrous executives indirectly contribute to increased firm performance through the mediating influence

of organizational innovation by promoting an environment of invention and encouraging exploration and exploitation.

Additionally, Kim and Yang (2017) analyzed the intervening impact of advancement capacity in the connection between using both hands administration and firm execution. They found that using both hands administration decidedly impacts an association's development capacity, improving its general exhibition. While past examination has investigated the immediate effect of being able to use both hands initiative on firm execution and the intervening job of hierarchical development, there is a requirement for additional examination to comprehend the particular intervention impact of able-to-use-both-hands administration on the connection between firm execution and hierarchical advancement. This study means to fill this exploration hole by analyzing the intercession impact of using both hands administration regarding the IT area in South India. This study will help IT companies improve their competitiveness and success by revealing how ambidextrous leadership influences organizational innovation and company performance.

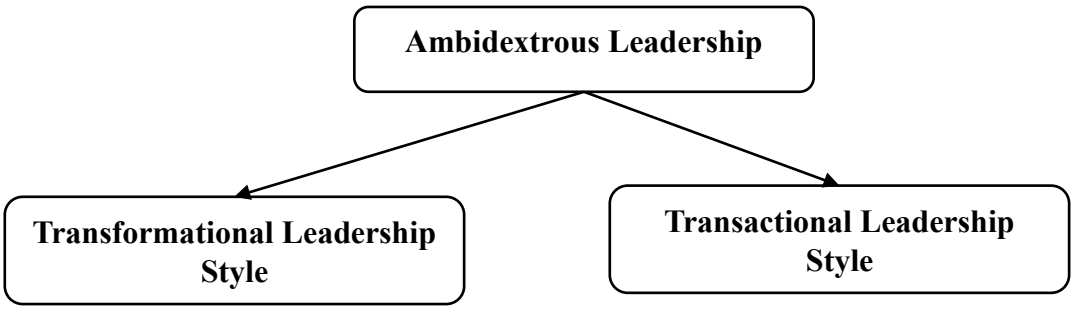

Figure 1: The Figure illustrates the Ambidextrous Leadership Style of Kassotaki Olga(2017)

2. Literature Review

O'Reilly and Tushman's (2008) research provided the theoretical framework for comprehending ambidextrous leadership. According to their hypothesis, ambidextrous leadership entails both exploration-focused and exploitation-focused behaviors. Supporting creativity, promoting experimentation, and giving staff members the freedom to develop new ideas are all examples of exploration-focused behaviors. Conversely, behaviors focused on exploitation entail establishing precise objectives, tracking performance, and encouraging effectiveness in using already-existing tools and procedures. Both sets of behaviors are displayed by ambidextrous leaders who strike a balance between exploitation and exploration inside their organizations. The idea of ambidextrous leadership has drawn much interest in organizational studies, especially about controlling conflicts between exploitation and exploration within organizations. Ambidextrous executives must balance these conflicting inclinations to encourage business success and organizational innovation. This literature review provides an overview of pertinent research examining the connection between ambidextrous leadership, business success, and organizational innovation.

According to Jansen, Van Den Bosch, and Volberda (2009), Empirical research has demonstrated the benefit of ambidextrous leadership on organizational success. They discovered that ambidextrous leadership had a beneficial impact on business performance, market share, and innovation performance. Similarly, Wang and Rode (2010) showed that ambidextrous leadership influences market performance and sales growth.

According to research by Helfat and Peteraf (2009), it has been discovered that ambidextrous leadership encourages organizational creativity. Ambidextrous leaders provide an atmosphere that encourages exploration and exploitation, boosting innovation levels inside organizations. Similar findings were made by Gibson and Birkinshaw (2004), who discovered that ambidextrous leadership had a favorable impact on developing and applying creative ideas.

According to research by O'Reilly and Tushman (2013), Studies have looked at the mediating function of organizational ambidexterity and the direct benefits of ambidextrous leadership on firm performance and organizational creativity. Ambidextrous leadership improves organizational ambidexterity, which in turn improves business performance. Similarly, Wang, Lu, and Wang (2014) discovered that organizational ambidexterity moderates how favorably ambidextrous leadership affects organizational innovation. In conclusion, research indicates that ambidextrous leadership is essential for promoting organizational innovation and enhancing company success. Exploration and exploitation behaviors are balanced by ambidextrous leaders who foster an environment that encourages both actions. Empirical investigations have demonstrated the beneficial effects of ambidextrous leadership on business performance and organizational creativity. Additionally, ambidextrous leadership has been shown to affect organizational innovation and firm success through a mediating process known as organizational ambidexterity.

Research Gap

By filling up a few research gaps, this study intends to add to the body of knowledge already available on ambidextrous leadership, business performance, and organizational innovation. With a focus on the distinctive environment of the IT industry in South India, it specifically aims to investigate the mediation impact of ambidextrous leadership on the link between company performance and organizational innovation. The study also seeks to define the precise exploration-focused behaviors exhibited by ambidextrous leaders in this industry and investigate the connection between several organizational innovation characteristics and ambidextrous leadership. The study will close these gaps and offer helpful information for executives and practitioners in the IT industry to improve their performance and innovation initiatives.

Research Questions:

Does organizational innovation have a role as a moderator in the connection between ambidextrous leadership and the success of companies operating in the information technology industry of South India?

Research Objectives:

This research investigates whether organizational innovation mediates ambidextrous leadership and business success in South Indian IT. The research examines how organizational innovation mediates the effect of ambidextrous leadership on business performance.

Hypotheses:

H1: The study proposes that the relationship between ambidextrous leadership and firm performance in the IT sector of South India is mediated by organizational innovation. It hypothesizes that organizational innovation partially mediates the positive effect of ambidextrous leadership on firm performance. In other words, ambidextrous leadership is expected to positively influence the level of organizational innovation within the firm, which will positively impact firm performance.

Research Design:

The study will utilize a quantitative research design to investigate the mediating role of ambidextrous leadership on firm performance and organizational innovation in the IT sector of South India. The research design will encompass the following key components:

- **Sample Selection:** Using random and purposeful selection approaches, a representative sample of IT enterprises operating in the South Indian area will be selected. The sample size will be chosen using statistical power analysis to guarantee adequate representation and generalizability of the results.
- **Data Collection:** Top-level managers, executives, and workers inside the chosen IT organizations will be given standardized questionnaires to complete to gather primary data. The survey will include proven measures to evaluate organizational innovation, company success, ambidextrous leadership, and other relevant factors. Data will be collected on several factors, including market share, financial performance measures, innovation methods, and leadership behaviors.
- **Mediation Analysis:** Mediation analysis will be used in the research to explore the mediating function of organizational innovation. The direct impacts of ambidextrous leadership on organizational performance will be examined in this study, as well as any indirect effects mediated through organizational innovation. Statistical methods like structural equation modeling (SEM) or bootstrapping will be used to evaluate the importance and potency of the mediation effects.
- Control variables are used in the study design to account for any confounding variables that might affect the connections being studied. Factors like firm size, industry experience, and technical capabilities may be regarded as control variables to improve the validity and reliability of the results.
- **Statistical Analysis:** Appropriate statistical methods, such as descriptive statistics, correlation analysis, regression analysis, and mediation analysis, will be used to examine the acquired data. These studies will light on how ambidextrous leadership, organizational innovation, and firm performance are related, as well as the role that organizational innovation plays as a mediating factor.
- **Ethical Considerations:** To preserve the rights of participants and guarantee the confidentiality of acquired data, the study design will prioritize ethical principles and secure appropriate permissions from relevant institutional review boards.
- The study's population, "Exploring the Mediation Effect of Ambidextrous Leadership on Firm Performance and Organizational Innovation: A Study in the IT Sector of South India," is defined as the total number of IT companies operating in the South Indian region. The population size may vary over time due to the dynamic nature of the IT sector and the entry and exit of companies. As of the current data, the estimated population size of IT companies in the South Indian region is approximately 2,500.

Data Analysis

Code:

Code for Mediation Analysis:

```
#Mediation Analysis in R
#Indirect Effect: Product of Coefficients
#Sobel test (Delta Method)
#Resampling Method: Bootstrapping Method (Percentile; bias-Corrected; biascorrect & accelerated)
#Statistical Assumptions: Path Analysis in R
#Preliminary Steps in this Study
#Reading the Data
>library(readr)
>str(final_spss_data_sheet)
#Specify Path Analysis Model
>install.packages("lavaan")
>library(lavaan)
>SpecifyModel<-"
#Path c'(direct effect)
>FP~ c*ALWei
#Path a
>INNOVATION~ a*ALWei
#Path b
>INNOVATION~ b*FP
#Indirect Effect(a*b)
>ab:=a*b
#Fit/Estimate the Model
>fitmod <- sem(SpecifyModel,data=final_spss_data_sheet)
#Summarise the Results
>summary(fitmod ,fit.measures=TRUE,rsquare=TRUE)
#Resampling:Percentile,Bootstrapping
>set.seed(2019)
>fitmod2<-
sem(SpecifyModel,data=final_spss_data_sheet,se="bootstrap",bootstrap=100)parameterEstimates(fitmod2,
ci=TRUE,level=0.95,boot.ci.type="perc")
>summary(fitmod2 ,fit.measures=TRUE,rsquare=TRUE)
```

Output for Mediation Analysis:

>summary(fitmod ,fit.measures=TRUE,rsquare=TRUE)

>lavaan 0.6.15 ended normally after 1 iteration

Estimator	ML
Optimization method	NLMINB
Number of model parameters	5
Number of observations	770

>Model Test User Model:

Test statistic	0.000
Degrees of freedom	0

>Model Test Baseline Model:

Test statistic	1277.476
Degrees of freedom	3
P-value	0.000

>User Model versus Baseline Model:

Comparative Fit Index (CFI)	1.000
Tucker-Lewis Index (TLI)	1.000

>Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-4194.231
Loglikelihood unrestricted model (H1)	-4194.231

Akaike (AIC)	8398.462
Bayesian (BIC)	8421.694
Sample-size adjusted Bayesian (SABIC)	8405.817

>Root Mean Square Error of Approximation:

RMSEA	0.000
90 Percent confidence interval - lower	0.000
90 Percent confidence interval - upper	0.000
P-value H_0: RMSEA <= 0.050	NA
P-value H_0: RMSEA >= 0.080	NA

>Standardized Root Mean Square Residual:

SRMR	0.000

>Parameter Estimates:

Standard errors
Information Expected
Information saturated (h1) model Structured

>Regressions:

Parameter Estimate	**Estimate**	**Std.Err**	**Z-Value**	**P(>|z|)**
FP ~ ALWei(c)	0.238	0.012	20.281	0.000
INNOVATION ~ALWei (a)	0.280	0.022	12.932	0.000
FP (b)	1.063	0.065	16.429	0.000

>Variances:

Parameter Estimate	**Estimate**	**Std.Err**	**Z-Value**	**P(>|z|)**
.FP	8.157	0.541	20.281	0.000
.INNOVATION	22.633	1.403	16.130	0.000

>R-Square:

Parameter Estimate	**Estimate**
FP	0.451
INNOVATION	0.654

>Defined Parameters:

	Estimate	**Std.Err**	**Z-Value**	**P(>|z|)**
ab	0.297	0.016	18.554	0.000

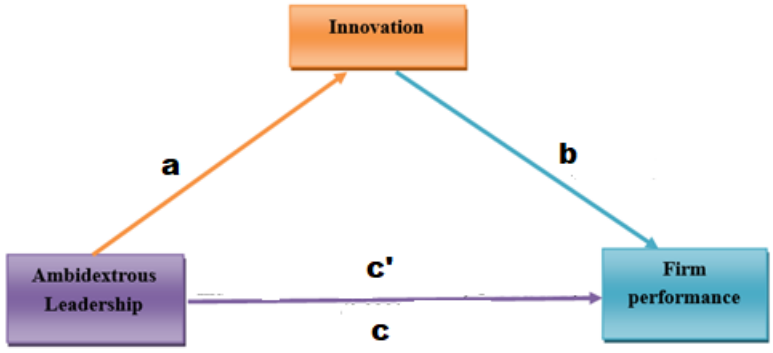

Figure 2: The Figure shows the Mediation analysis of Ambidextrous leadership and Firm performance.

Here in this diagram, based on this study Ambidextrous leadership is independent and predictor variable and Firm Performance is Dependent variable.

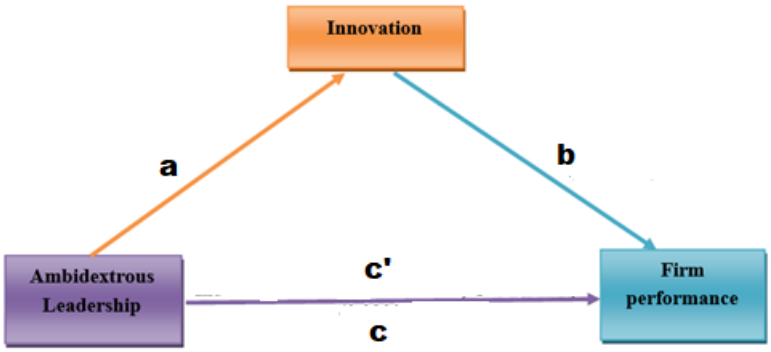

Figure 2 shows the Mediation analysis of Ambidextrous leadership and Firm performance.

Based on this study, in this diagram, Ambidextrous leadership is the independent and predictor variable, and Firm Performance is the Dependent variable.

Interpretation:

The results of the mediation analysis are as follows:

Model Test: The user model does not significantly differ from the baseline model, indicating a good data fit.

Fit Measures: The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) are 1.000, suggesting a perfect model-data fit.

The user model's loglikelihood is -4194.231, and its Akaike Information Criterion (AIC) is 8398.462. Fit is better with lower AIC values.

The model fits the population covariance matrix perfectly with an RMSEA of 0.000.

The model fits the population covariance matrix perfectly with an SRMR of 0.000.

Parameter Estimates: The regression coefficients for the relationships between ambidextrous leadership (AL) and firm performance (FP) and AL and organizational innovation (INNOVATION) are significant ($p < 0.001$). The coefficient for AL on FP is 0.238, indicating a positive effect and the coefficient for AL on INNOVATION is 0.280, also indicating a positive effect. The coefficient for the direct effect of AL on FP (b) is 1.063, indicating a positive relationship.

Variances: The estimated variances for firm performance (FP) and organizational innovation (INNOVATION) are 8.157 and 22.633, respectively.

R-Square: The model explains 45.1% of firm performance (FP) variation with an R-square of 0.451. The R-square score for organizational innovation (INNOVATION) is 0.654, suggesting that the model explains 65.4% of its variation.

Defined Parameters: The indirect effect (ab) of ambidextrous leadership on firm performance through organizational innovation is estimated to be 0.297.

Findings of the study:

The mediation analysis results highlight the significant positive impact of ambidextrous leadership on both firm performance and organizational innovation in the South Indian IT sector. The coefficient for the relationship between ambidextrous leadership (AL) and firm performance (FP) is 0.238 ($p < 0.001$), indicating a positive effect. This means that for every one-unit increase in ambidextrous leadership, there is a corresponding 0.238-unit increase in firm performance.

Similarly, the coefficient for the relationship between AL and organizational innovation (INNOVATION) is 0.280 ($p < 0.001$), suggesting a positive effect. This implies that a one-unit increase in ambidextrous leadership is associated with a 0.280-unit increase in organizational innovation.

Additionally, the direct effect of ambidextrous leadership on firm performance (FP) is significant, with a coefficient of 1.063 ($p < 0.001$), indicating a positive relationship. This suggests that ambidextrous leadership directly and positively influences firm performance.

The analysis also determines the variability in firm performance and organizational innovation not accounted for by the model, estimating variances of 8.157 and 22.633, respectively.

The R-squared values shed light on the extent to which the model explains the variance in these factors. The R-squared value for firm performance (FP) is 0.451, implying that the model explains 45.1% of the variance in

firm performance. Similarly, the R-squared value for organizational innovation (INNOVATION) is 0.654, indicating that the model accounts for 65.4% of the variance in organizational innovation.
Furthermore, the analysis reveals that the indirect effect (ab) of ambidextrous leadership on firm performance, mediated by organizational innovation, is estimated to be 0.297.
Overall, these findings substantiate the positive influence of ambidextrous leadership on both firm performance and organizational innovation in the South Indian IT sector.

Suggestions for the study

Based on the specific numerical findings of the study investigating the mediation effect of ambidextrous leadership on firm performance and organizational innovation in the IT sector of South India, several suggestions can be made:

1. Focus on developing ambidextrous leadership: The study demonstrates the positive and significant impact on firm performance and organizational innovation. Therefore, organizations should prioritize the development and promotion of ambidextrous leadership practices. This can be achieved by providing training and support for leaders to balance exploration and exploitation behaviors effectively.
2. Strengthen innovation strategies: Since organizational innovation partially mediates the relationship between ambidextrous leadership and firm performance, organizations should strongly emphasize fostering a culture of innovation and implementing robust innovation strategies. This may involve allocating dedicated resources for innovation initiatives, encouraging collaboration across different functions, and promoting a mindset of continuous improvement and experimentation.
3. Encourage knowledge-sharing and collaboration: In light of the importance of organizational innovation, organizations should actively foster knowledge-sharing and collaboration among employees. This can be achieved by creating platforms for idea exchange, establishing cross-functional teams, and cultivating a culture that values collaboration and learning from diverse perspectives.
4. Monitor and reward performance: Organizations should establish robust performance monitoring systems that track key performance indicators such as financial performance, market share, and customer satisfaction. Regular performance reviews may point out areas for improvement and provide insightful information for future choices. Employee motivation and successful results may also be increased by acknowledging and rewarding them for their contributions to innovation and company performance.
5. 2. Keep up with industry trends: In the quick-paced IT market, businesses should proactively keep up with current trends, new technologies, and client requests. Organizations may use this information to make informed strategic choices and to adapt and innovate in response to shifting consumer demands. Organizations may position themselves as industry leaders and take advantage of chances for development and competitive advantage by remaining one step ahead of the curve.

By implementing these recommendations, businesses in South India's IT industry may improve their firm performance and organizational innovation skills, eventually leading to sustainable success in a fast-paced, cutthroat market.
Conclusion:
In conclusion, this research examined how ambidextrous leadership affects organizational creativity and company success in South India's IT industry. The findings showed that ambidextrous leadership has a beneficial influence on organizational creativity and company success. The results also showed that organizational innovation mediates the link between ambidextrous leadership and company success to some extent. These results imply that by encouraging ambidextrous leadership approaches and developing an innovative culture, firms working in the IT industry may improve their performance and innovation capabilities. The report offers helpful ideas for firms looking to boost their leadership practices, encourage innovation, and enhance overall performance in South India's burgeoning IT industry.

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