

# The Influence of Entrepreneurial Orientation on Startup Performance of Technology-Based Startup Companies - Focusing on the transformational leadership mediating effect-

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## Article Info

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## Abstract:

Startup performance through the mediating effect of transformational leadership.

**Methods/Statistical analysis:** The research target is CEO with manufacturing businesses that are less than 7 years old, and the survey method was conducted. The survey items consisted of a total of 25 questions, including demographic 5 questions, and measurements were made using a Likert 5-point scale. As an empirical analysis, SPSS 22.0 was used to Exploratory Factor Analysis, reliability analysis, regression, and mediated effect analysis.

**Findings:** The results of the study were as follows: First, entrepreneurial orientation, Innovative, Initiative, and Risk-taking were found to influence startup performance, and Innovation had the greatest influence ( $\beta = .359$  \*\*\*). Second, the entrepreneurial orientation Innovative, Initiative, and Risk-taking were found to influence transformational leadership, and Risk-taking had the greatest impact ( $\beta = .405$  \*\*\*). Third, transformational leadership had an influence on startups performance ( $\beta = .425$  \*\*\*). Fourth, in terms of entrepreneurial orientation and startup performance and impact, Innovation and Risk-taking partially mediate transformational leadership, while, Initiative completely mediates ( $p = .122$ ).

**Improvements/Applications:** As a result, the entrepreneurial orientation of general firms was found to be an important factor for management performance, but in this study mediating transformational leadership among CEOs of startups, only Innovation and Risk-taking were identified as important factors. Therefore, it is necessary to study the optimal composition scenario of CEO's entrepreneurial orientation and transformational leadership.

## Article History

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## 1. Introduction

In the era of the Fourth Industrial Revolution, digital technology has become the center of

change so that it is referred to as digital convergence. Startup entrepreneurs are competing fiercely amid rapid changes in digital technology

and uncertainties in the environment. Everyone has to be a risk-taker and has a higher probability of failure than the probability of success. More than half of Korea software-based start-ups (57.6%) close within five years, and 38.8% of companies close within three years. Only 15% of SW start-ups have been operating for more than 10 years. In other words, 85% of companies will close in 10 years[1]. Through prior research, the company aims to optimize the CEO characteristics for sustainable management by re-lighting the entrepreneurial orientation[2] that enhances the results of start-up through transformational leadership.

## 2. Materials and Methods

### 2.1. Concept of Technology start-up

According to many previous studies, the definition of a technology start-up company may vary slightly from researcher to researcher, but it can be said to mean small and medium-sized companies that produce results through innovation or continue their innovation activities[3]. It is usually used as a venture company in Korea. In this study, we refer to innovative technology-intensive companies within seven years of establishment.

### 2.2. Concept of Entrepreneurial orientation

Entrepreneurial orientation is the most studied topic in entrepreneurship literature and a concept that has been extensively studied for decades. Miller (1983) defined entrepreneurial firms as innovators by taking risky plans in the product-market sector, pursuing innovation, and taking preemptive actions in an attempt to defeat competitors. According to this definition, Miller presented three entrepreneurship mental orientations: innovative, preemptive (future-oriented, initiative), and risk-taking. Innovative concept[4], first introduced by Schumpeter (1934), represents a new combination of new products, new sources of raw materials, new ways of production, new markets, and recombination of

resources for new organizations. All physical and human factors are called new combinations. Innovative entrepreneurship is a manager's effort to continually work and transform the organization to create new opportunities despite the uncertainty of the external environment and resource constraints[5]. Initiative tends to take advantage of leading companies ahead of competitors by foreseeing future actions and taking action[6]. In other words, they are willing to create superior performance and competitive advantage in the market or respond directly and with high intensity in order to move their market position to the top and actively respond to competitors[7]. It explained that risk-taking is the ability to detect new business opportunities by venturing into new activities even though there is no assurance of success in new businesses. This refers to the tendency to put resources into developing new products at the risk of uncertainty over estimated profit or loss.

### 2.3. Concept of Transformational Leadership

Transformational leadership is the power to move followers through charisma, ideal influences, inspirational motives, intellectual stimulation, or individual care, Inspires interest in[8].

### 2.4. Concept of Startup performance

Performance is widely used in various fields, and in particular, the performance of a startup is the same as the output of a company's management. These performances are largely divided into effectiveness and efficiency. Effectiveness refers to the degree of success considering the relationship with competitors in a certain market, and efficiency refers to the ratio of output to input resources [9]. In this study, quantitative measuring tools such as sales, job creation, exports, and market share were used to measure the performance of entrepreneurship.

### 2.5. Relationship between Transformational Leadership and Startup performance

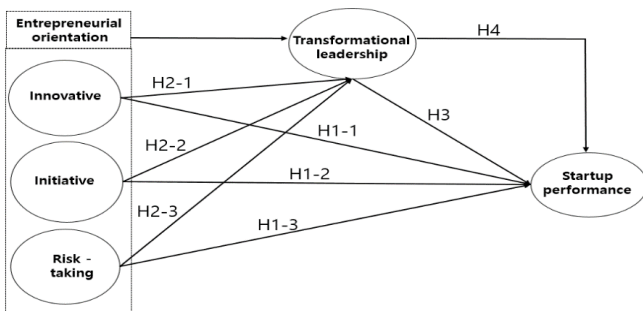
A study on leadership and management performance conducted by SMEs showed that

transformational leadership had a significant effect on financial and non-financial performance. Transactional leadership had a significant effect on financial performance. It was confirmed that it did not have a significant effect on the management performance [10].

## 2.6. The Research model and hypothesis

### 2.6.1. Research model

The purpose of this study is to find the optimal combination of Entrepreneurial orientation and Transformational leadership of entrepreneurs. For empirical verification of this study, the Entrepreneurial orientation of Innovative, Initiative, and Risk-taking were used as independent variables. A research model was established by establishing a Startup performance with Transformative leadership and dependent variables. The model of effect analysis between variables is as follows [Figure 1].



**Figure 1. Research model**

### 2.6.2. Research hypothesis

H1-1 Innovative entrepreneurial orientation will have a positive effect on startup performance.

H1-2 Initiative entrepreneurial orientation will have a positive effect on startup performance.

H1-3 Risk-taking entrepreneurial orientation will have a positive effect on startup performance.

H2-1 Innovative entrepreneurial orientation will have a positive effect on transformational leadership.

H2-2 Initiative entrepreneurial orientation will have a positive effect on transformational leadership.

H2-3 Risk-taking entrepreneurial orientation will have a positive effect on transformational leadership.

H3 Transformational leadership will have a positive effect on Startup performance.

H4-1 The mediating effect of transformational leadership has a positive effect on the relationship between Innovative and startup performance.

H4-2 The mediating effect of transformational leadership has a positive effect on the relationship between Initiative and startup performance.

H4-3 The mediating effect of transformational leadership has a positive effect on the relationship between Risk-taking and startup performance.

### 2.6.3. The Operational definition of variables

The operational definition of each variable is summarized as [Table 1].

**Table 1. The Operational definition of variables**

Evaluation	Measurement variable	Operational definition	Configure Questionnaire	Researcher
Entrepreneurial orientation	Innovative	In spite of uncertainties in the external environment and resource constraints, managers' efforts to continuously change their organization to create new opportunities	5 questions	[11]
	Initiative	Advancement is likely to overwhelm competitors aggressively with the ability to anticipate forward to introduce new products and services ahead of competitors.	5 questions	
	Risk-taking	The tendency to make decisions and take concrete action to commit resources in situations where performance is uncertain.	5 questions	
Transformational leadership	Transformational leadership	Specifying visions to be shared by members, high respect for leaders, high determination in carrying out goals, intellectual stimulation and individual consideration of subordinates.	5 questions	[12]
Startup performance	Startup performance	In addition to financial and non-financial indicators, performance is measured through indicators such as technological excellence, technological innovation capability, and commercialization capability, reflecting technical aspects.	5 questions	[13]

## 3. Results and Discussion

### 3.1. Empirical Discussion

#### 3.1.1. Analysis of Demographic Characteristics and Descriptive Statistic

The number of samples used in this study was a total of 292, the frequency analysis was carried out to determine the demographic characteristics of the sample. The analysis showed that men 86.3% (252), women 13.7% (40). Age was the highest in the 30s to 39.4% (115), followed by 40 to 33.9% (99). The start-up period was the highest in less than seven years at 37.7% (110), and 80.1% (234) had business experience. Re-start experience was 54.5% (159) and no.3 9.6% (28). In this study, the analysis of the data collected by

management consultants who are performing real consulting showed that the individual measurement variables follow the normal distribution of the standard deviation 3 or less, why the statistics absolute value 3 or less, the cusp statistics absolute value 3 or less.

### 3.1.2. Exploring Factors and Reliability Analysis

It was carried out an exploratory factor analysis in order to verify the validity. The main component analysis was used, it was used for the simplistic method (Varimax) to simplify the factor loading value. Selection criteria of the question in this study were based on the unique value is more than 1.0, the factor load value is more than 0.4. Factor analysis showed that enterprising 4 was removed due to low convergent validity, Initiative 5 was removed due to low discriminant validity. Reliability analysis results Cronbach's alpha coefficient of all measurement variables appears to be more than 0.6 of the general level is determined that the reliability is secured exploratory factor analysis and confidence analysis summary is as follows [Table 2].

**Table 2. Exploring Factors and Reliability Analysis**

Measurement Item	Exploratory Factor Analysis						Reliability Analysis
	Risk-taking	Startup performance	transformative leadership	Innovative	initiative	commonality	
Risk-taking 3	.776	.166	.233	.211	.104	.739	.882
Risk-taking 2	.770	.195	.133	.102	.159	.684	
Risk-taking 5	.744	.244	.155	.123	.187	.687	
Risk-taking 4	.737	.194	.251	.145	.111	.677	
Risk-taking 1	.682	.160	.312	.218	-.013	.636	
Startup performance 2	.192	.757	.233	.259	.073	.737	.893
Startup performance 4	.255	.753	.265	.265	.121	.788	
Startup performance 3	.291	.726	.223	.160	.141	.706	
Startup performance 5	.219	.714	.281	.203	.143	.700	
Startup performance 1	.133	.690	.243	.159	.170	.607	
Transformational leadership 2	.255	.260	.764	.172	.154	.770	.890
Transformational leadership 3	.207	.301	.736	.264	.112	.757	
Transformational leadership 4	.232	.283	.712	.190	.156	.701	
Transformational leadership 5	.335	.287	.632	.150	.226	.668	
Transformational leadership 1	.322	.282	.571	.229	.132	.579	
Innovative 1	.169	.155	.118	.770	.119	.681	.854
Innovative 3	.265	.194	.040	.761	.088	.696	
Innovative 4	.189	.239	.308	.696	.122	.689	
Innovative 5	.201	.287	.370	.679	.089	.731	
Innovative 2	-.036	.164	.228	.594	.349	.554	
Initiative 1	.102	.116	.103	.073	.806	.690	.671
Initiative 2	.114	.106	.258	.214	.699	.625	
Initiative 3	.323	.255	.074	.240	.557	.543	
Kaiser-Meyer-Olkin Sample Fit							.0.938
Bartlett's unit matrix test							.0.000
Approximate Chi Square							.0.000
4024.254							.0.000
df							.0.000
253							.0.000
p-value							.0.000

### 3.1.3. Pearson's correlation analysis

As a result of the correlation analysis, the correlation between variables was statistically

significant. The correlation between Startup performance and Transformational leadership was .707 \*\* highest, and the correlation between Risk-taking and Initiative was the lowest .452 \*\*. A summary of the correlation analysis results is shown in [Table 3].

**Table 3. Summary of Correlation Analysis Results**

constructs	N	Mean	standard deviation	Innovative	Initiative	Risk-taking	Transformational leadership	Startup performance
Innovative	292	3.972	0.621	1	.505**	.514**	.615**	.606**
Initiative	292	3.637	0.680	.505**	1	.452**	.516**	.480**
Risk-taking	292	3.595	0.623	.514**	.452**	1	.647**	.588**
Transformational leadership	292	3.855	0.633	.615**	.516**	.647**	1	.707**
Startup performance	292	3.799	0.653	.606**	.480**	.588**	.707**	1

### 3.2. Hypothesis test result

To test this study hypothesis was carried out a Multi-regression analysis using the SPSS ver.22 statistical package. [Table 4] showed that Durbin-Watson was close to 2.118 and there were no residuals. Besides, since the VIF (variable inflation factor) is less than 10 is determined that there is no Multi-collinearity between the independent variables is suitable for Multi-regression analysis. Entrepreneurial orientation has been shown to have an effect on Startup performance. The hypothesis H1-1, H1-2, H1-3 hypothesis have all been adopted, and innovation is shown to have the greatest impact of .359\*\*\* and the next Risk-taking to .337\*\*\*. Entrepreneurial orientation can be said to have a 48% explanation of Startup performance. [Table 4] is a summary of the results between Entrepreneurial orientation and Startup performance.



**Table 4. Summary of Multi-regression Analysis Results**

Hypothesis	Constructs	B	$\beta$	t	p-value	VIF	Results
	(Constant)	.519		2.575	.011		
H1-1	Innovative	.377	.359	6.800	.000	1.557	Accept
H1-2	Initiative	.141	.147	2.890	.004	1.439	Accept
H1-3	Risk-taking	.354	.337	6.613	.000	1.457	Accept
R <sup>2</sup> =.486, Adjusted R <sup>2</sup> =.480, F=90.685(p = <.001), Durbin-Watson=2.118, Dependent variable: Startup performance							
	(Constant)	.497		2.710	.007		
H2-1	Innovative	.327	.321	6.481	.000	1.557	Accept
H2-2	Initiative	.159	.171	3.593	.000	1.439	Accept
H2-3	Risk-taking	.412	.405	8.472	.000	1.457	Accept
R <sup>2</sup> =.548, Adjusted R <sup>2</sup> =.543, F=116.204(p = <.001), Durbin-Watson=2.122, Dependent variable: Transformational leadership							
	(Constant)	.989		5.911	.000		
H3	Transformational leadership	.729	.707	17.019	.000		Accept

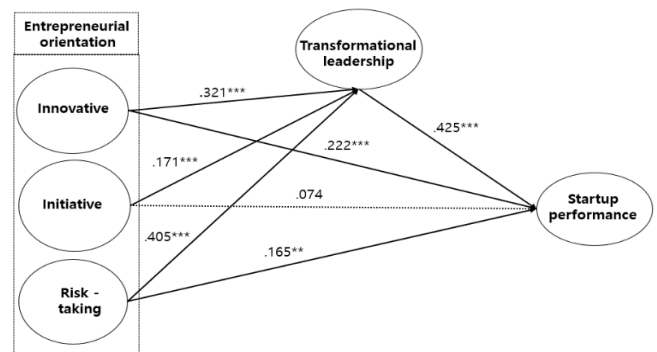
R<sup>2</sup>=.500, Adjusted R<sup>2</sup>=.498, F=289.643(p = <.001), Durbin-Watson=2.096, Dependent variable: Startup performance

### 3.2.1. Mediated effect analysis

To analyze the impact of Entrepreneurial orientation on Startup performance, we utilized a three-step approach of Baron & Kenny [14] to conduct multi-regression analysis for mediated effect analysis. In the first stage, Entrepreneurial orientation appeared to have an effect on Startup performance, the hypothesis H1-1,2,3 was adopted altogether, and in the second stage, Entrepreneurial orientation appeared to have an influence on the Transformational leadership, the hypothesis H2-1,2,3 was adopted. In the third phase, the impact of Entrepreneurial orientation on Startup performance in relation to Innovative, Risk-taking, partial mediation, and Initiative appears to be fully mediated, and the hypothesis H4-1,2,3 was adopted altogether. The following [Figure 2] is an analysis of the impact of the relationship between Entrepreneurial orientation

and Transformational leadership on Startup performance.

As shown in [Figure 2] is the result of a hypothesis test between Entrepreneurial orientation and Startup performance.



p-value: \*p<.05 \*\*p<.01 \*\*\*p<.001

**Figure 2. Analysis of the effect of Entrepreneurial orientation and Transformational leadership on Startup Performance**

[Table 5] Summarizes the effect of the relationship between Entrepreneurial orientation and Transformational leadership on Startup performance.

**Table 5. Summary of Results of Mediating Effects of Transformational leadership Between Entrepreneurial orientation and Startup Performance**

Classification	Step1		Step2		Step3		Results
	Dependent variable: Start-up performance		Dependent variable: Transformative leadership		Dependent variable: Start-up performance		
	B	Beta	B	Beta	B	Beta	Mediating effect
(Costant)	.519		.497		.301		
Innovative	.377	.359	.327	.321	.233	.222	Partial mediating
Initiative	.141	.147	.159	.171	.071	.074	Full mediating
Risk-taking	.354	.337	.412	.405	.173	.165	Partial mediating
Transformative leadership					.439	.425	
R2	.548		.500		.562		
F	90.685***		116.204***		94.210** *		
Durbin-Watson	2.118		2.122		2.145		
p-value: *P< .05 **p< .01 ***p< .001							

#### 4. Conclusion

This study suggested that the relationship between Entrepreneurial orientation and Transformational leadership has a significant impact on Startup performance. The purpose of this study is to demonstrate the relationship between Startup performance and transformational leadership, which can increase Startup performance to increase the probability of survival of start-up companies and expand corporate sustainability. First of all, the higher the Entrepreneurial orientation, the higher the startup performance. Second, the more Transformational leadership of Startup performance, the higher the results of startups. Third, Innovation and Risk-taking among Entrepreneurial orientation showed high startup performance through the relationship between Transformational leadership, but the Initiative appeared to be fully mediated in improving startup performance. Therefore, we will demonstrate that we can create ways to improve Startup performance through a combination of Innovation, Risk-taking, and Transformational leadership.

#### 5. Acknowledgment

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