
Change Management and Organizational Innovation in the Digital Transformation Era

2019.10.31.

2019 Global Public HR Conference

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Abstract

- **“How can organizations survive a change in policy environment?”**
- **Organizations are always under pressure of change. Organizations must respond appropriately to changes in the external environment surrounding them and manage their internal organizations in order to make these changes successful. Recently, the development of information and communication technologies such as big data, cloud computing, internet of things, and artificial intelligence is promoting digital transformation. This is the era of so-called digital transformation. Digital transformation also means a shift to digitalization of society as a whole, but more essentially an organization's survival strategy to survive digital change. In the age of digital transformation, organizational innovation is seen as an essential element of survival beyond choice for development.**
- **This study is a analysis of change management and innovation behavior surrounding organizational innovation. In the field of innovation, organizational innovation starts with an organization's innovative leaders, but at the same time it requires education and training that enhances its ability to carry out innovation and empathy through communication about organizational innovation. These changes management efforts will lead to the promotion of innovation behavior by the members of the organization. And the innovation behavior of employees through change management will lead to organizational innovation.**

Abstract

- **We analyzed the mediating effects of the Hayes model using the 2018 Korean , organizational innovation starts with an organization's innovative leaders, but at the same time it requires education and training that enhances its ability to carry out innovation and empathy through communication about organizational innovation. These changes management efforts will lead to the promotion of innovation behavior by the members of the organization. And the innovation behavior of employees through change management will lead to organizational innovation.**
- **We analyzed the mediating effects of the Hayes model using the 2018 Korean Institute of Public Administration survey data. As a result of the analysis, first, the transformational leadership among the change management factors affects the innovation behavior and further has a significant impact on organizational innovation. Second, competency education and training may affect innovation behavior, but it does not lead to organizational innovation. Third, participation and communication were mediated by innovation behaviors of employees and had a significant influence on organizational innovation. In particular, consensus and communication about innovation will be important for organizational innovation.**

Introduction

- **Constant concern over the survival of the organization surrounding environmental changes**
 - How will organizations respond to changes in the environment surrounding them?
 - How will the organization help manage change for its members?

- **Digital transformation and Organization**
 - In a broad sense, digital transformation also means a big trend in which society changes to a digital center.
 - More fundamentally, digital transformation also means change management for the survival of organizations in the digital age.

- **Key elements of the digital transformation**
 - Leadership, capacity building through education, and communication through communication are still emphasized.

Introduction

- **Purpose of Research**

- **A Study on the Relationship between Change Management, Innovation Behavior, and Organizational Innovation**
- **This study focuses on innovation behavior that mediates change management and organizational innovation. In other words, in order for innovation management to be successful, it is necessary to induce the organization's innovation behavior, which can lead to successful organizational innovation.**
- **=> How does change management drive organizational innovation? And how does innovation behavior mediate change management and organizational innovation?**

Change Management, Innovation Behavior, and Organizational Innovation

● Change Management

- Change management is the process, tools and techniques to manage the people side of change to achieve the required business outcome.
- Change management incorporates the organizational tools that can be utilized to help individuals make successful personal transitions resulting in the adoption and realization of change.
- <https://www.prosci.com/resources/articles/change-management-definition>

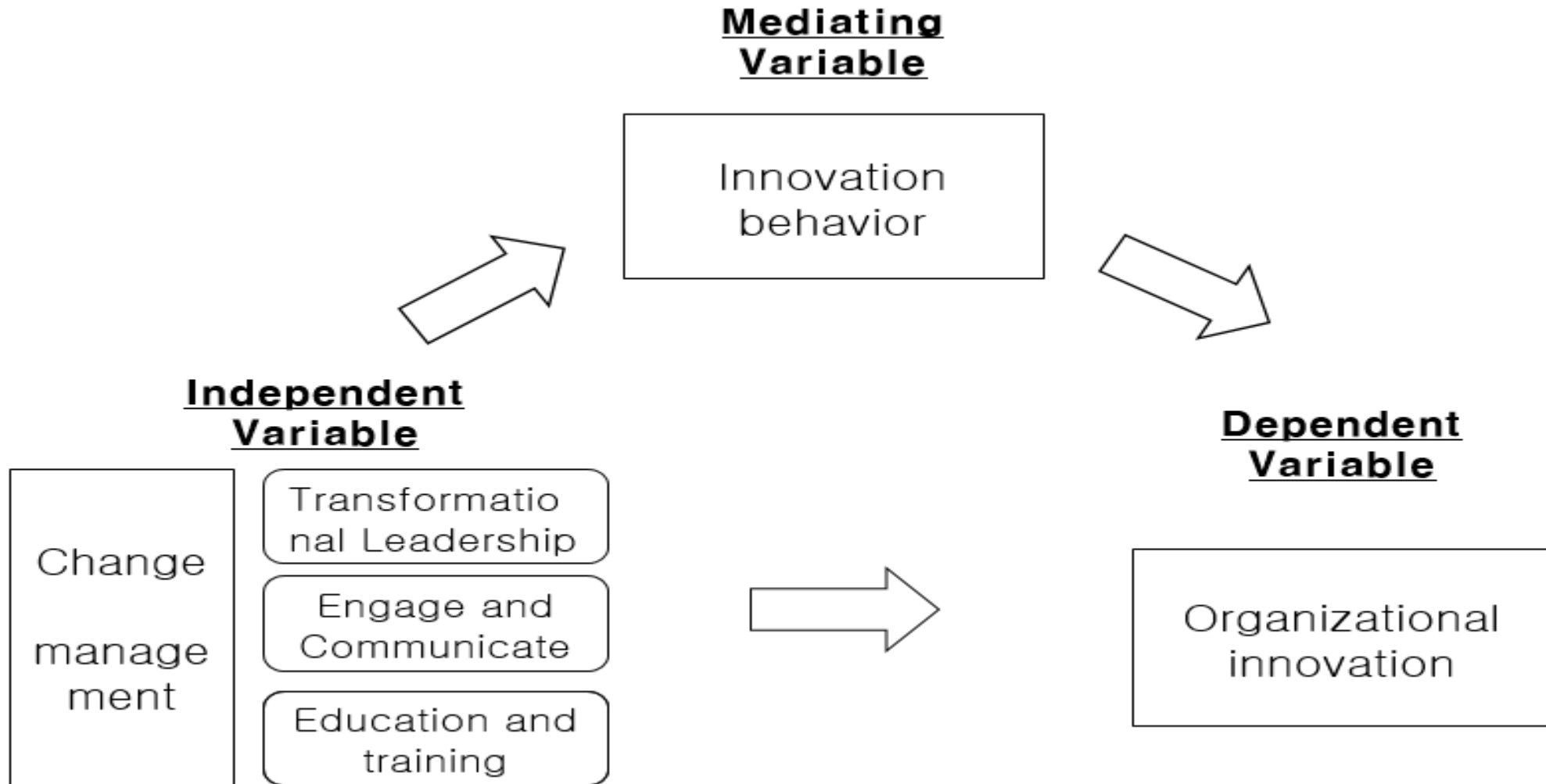
● Innovation Behavior

- Innovative behavior refers to the introduction and application of new ideas, products, processes, and procedures to a person's work role, work unit, or organization.
- A great amount of research has been focused on identifying factors that may encourage and enable employees to demonstrate innovative behavior at work. Frequently studied topics include individual characteristics, motivation, and affect, as well as contextual antecedents such as organizational culture, job characteristics, leadership, and social relationships. (Feirong Yuan, Dennis J. Marquardt, 2015)

● Organizational Innovation

- Organisational innovation means the implementation of a new organisational method in the undertaking's business practices, workplace organisation or external relations.
- The domain of research on organizational innovation encompasses organizational activities and mechanisms for the creation (generation) and application (adoption) of new technological or nontechnological ideas and practices across their value chain (Fariborz Damanpour, 2017)

Research Framework



Research Question and Research Question

- **Research Question 1. “Do Change Management Factors Affect Innovation Behavior?”**
 - H 1-1. Transformational leadership will have a significant impact on innovation behavior.
 - H 1-2. Participation and communication will have a significant impact on innovation behavior.
 - Hypothesis 1-3. Training will have a significant impact on innovation behavior.
- **Research Question 2. Do Change Management Factors Indirectly Affect Organizational Innovation through Innovation Behavior?**
 - H 2-1. Transformational leadership will indirectly affect organizational innovation through innovation action.
 - H 2-2. Participation and communication will indirectly affect organizational innovation through innovation action.
 - H 2-3. Training will indirectly affect organizational innovation through innovation action.
- **Research Question 3. Will Change Management Factors Affect Organizational Innovation?**
 - H 3-1. Transformational leadership will affect organizational innovation.
 - H 3-2. Participation and communication will impact organizational innovation.
 - H 3-3. Training will affect organizational innovation.

Variables and Measurements

	Variable name		Measurements	
Dependent Variable	Organizational innovation		Our organization is flexible and responds immediately to change	1. Strongly disagree~ 5.strongly agree (Likert scale 5 point)
			Our organization tolerates some risks for innovation	
			Change in our organization has a largely positive effect	
Independent variable	Change management factors	Transformational Leadership	My boss gives me a firm vision for the future.	
			My boss motivates me to work hard.	
			My boss encourages me to work from a new perspective.	
		My boss helps me develop myself.		
		Engage and Communicate	In our organization, decisions are made in a fair way	
			We consider all employees' opinions in making any decisions	
			We may ask for clarification or additional information about the decisions made in our organization.	
			Employees can object to decision-making in our organization	
			In our organization, cross-departmental collaboration is generally smooth when business cooperation is needed	
	In our organization, we communicate smoothly (vertically) in the work of departments.			
	Education and training	In our organization, communication between employees (horizontal) is smooth in performing departmental work		
		I am constantly developing myself to improve my ability to do my job.		
		I can have adequate training and capacity development opportunities as needed to do my job.		
			Recent training and skills development activities have helped me in my job performance.	
	Mediating variable	Innovation behavior		I endeavor to invent and apply new and original ways of doing business.
I develop new ideas to solve problems that arise during my work.				

Variables and Measurements

Controlled Variables	Demographic sociological factors	gender 0. Man 1. Woman		1. Strongly disagree 5. strongly agree (Likert scale 5 point)
		age 1. 20s 2. 30s 3. 40s 4. 50 or more		
		Education 1. High school graduate or lower 2. College graduate 3. University graduate 4. Master's degree 5. Doctor's degree		
		Tenure 1. Less than 5 years 2. 6 to 10 years 3. 11 to 15 years 4. 16 to 20 years 5. 21 to 25 years 6. More than 26 years		
		rank 1. Grades 8-9, 2. Grades 6-7, 3. Grade 5, 4. Grades 1-4		
		Organization type 0. Central Department 1. Local government		
		Appointment type 0. Open competition recruitment, 1. Other than open competition		
		Work environment factors	Business support resources	
	I am adequately provided with material resources, such as budget for work			
	I am properly provided with information resources such as information and IT facilities necessary for the performance of work.			
	Business autonomy		I have a choice about how I do my work and what I do	
			I can adjust the speed of work or the deadline I can decide on the order of performance or the priorities.	
	Work capability		My work requires high competence	
		My current job is consistent with my capacity. My job competencies are superior to those of private companies (large firms) who perform similar tasks.		

Data and Analysis Method

- **Data**

- **KIPA 2018 Civil Service Awareness Survey**
- **Population: Public officials from 46 central ministries and 17 metropolitan municipalities as of August–September 2018.**
- **Survey Method: Survey via E-mail**
- **Sample size: 4,000 total**

- **Analysis method**

- **Hayes' Macro Process**
- **Hayes' Macro Process proposed by Hayes (2013) is a new verification method that compensates for the shortcomings of Baron & Kenny' s method (1986) and Sobel test (1982), which have been used to verify the mediating effects.**

Survey Respondent Features

	case	percentage(%)
total	4,000	100,0
Organization type		
Central Department	2,000	50,0
Local government	2,000	50,0
gender		
Man	1,422	35,6
Woman	2,578	64,5
age		
20s	318	8,0
30s	1,232	30,8
40s	1,536	38,4
50 or more	914	22,9
Education		
High school graduate or lower	163	4,1
College graduate	266	6,7
University graduate	2,689	67,2
Master's degree	773	19,3
Doctor's degree	109	2,7
Tenure		
Less than 5 years	711	17,8
6 to 10 years	590	14,8
11 to 15 years	795	19,9
16 to 20 year	502	12,6
21 to 25 years	534	13,4
More than 26 years	868	21,7
Recruitment type		
Open competition recruitment	3,239	81,0
Other than open competition	537	13,5
Others	224	5,6
rank		
Grades 1-4	311	7,8
Grade 5	902	22,6
Grades 6-7	2,381	59,5
Grades 8-9	406	10,2

Validity and Reliability of Measurements

Variables	Measurements	Rotate: Varimax loading			Comm.	Cronbach's Alpha	
Engage a n d Communi cate	In our organization, decisions are made in a fair way	.754	.332	.176	.709	.916	
	We consider all employees' opinions in making any decisions	.778	.281	.151	.708		
	We may ask for clarification or additional information about the decisions made in our organization.	.792	.262	.134	.713		
	Employees can object to decision-making in our organization	.782	.254	.119	.690		
	In our organization, cross-departmental collaboration is generally smooth when business cooperation is needed	.724	.176	.180	.587		
	In our organization, we communicate smoothly (vertically) in the work of departments.	.757	.280	.154	.675		
	In our organization, communication between employees (horizontal) is smooth in performing departmental work.	.714	.213	.172	.584		
Transform ational Leadership	My boss gives me a firm vision for the future.	.329	.825	.156	.813	.936	
	My boss motivates me to work hard.	.316	.858	.158	.862		
	My boss encourages me to work from a new perspective.	.310	.855	.151	.849		
	My boss helps me develop myself.	.311	.835	.187	.829		
Education a n d training	I am constantly developing myself to improve my ability to do my job.	.088	.093	.835	.714	.799	
	I can have adequate training and capacity development opportunities as needed to do my job.	.266	.196	.782	.721		
	Recent training and skills development activities have helped me in my job performance.	.202	.172	.810	.726		
% total Variance		32,426	24,266	16,021			
Cumul. %		32,426	56,692	72,713			
KMO(Kaiser - Meyer - Olkin)					.933		
(Bartlett' Test of Sphericity)					Chi-Square		3955,845
					df(p)		91
					P-Value		.000

Results of Analysis

<Tables> Mediation effect verification by Hayes process macro (Model = 4)

independent variable	dependent variable	β	se	t	p	LLCI	ULCI
Transformational Leadership	Organizational innovation	.0861	.0119	7.2524	.0000	.0628	.1093
Engage and Communicate		.6228	.0148	42.1155	.0000	.5938	.6518
Education and training		.0168	.0114	1.4649	.1430	-.0057	.0392

$R^2 = .6739$, $F=293.0515$ ($P=0.0000$), Total Effect of Independent Variables

independent variable	dependent variable	β	se	t	p	LLCI	ULCI
Transformational Leadership	Innovation behavior	.0524	.0173	3.0230	.0025	.0184	.0864
Engage and Communicate		.0775	.0216	3.5881	.0003	.0351	.1198
Education and training		.1045	.0167	6.2573	.0000	.0718	.1373

$R^2 = .3044$, $F=62.0516$ ($P=0.0000$)

independent variable	dependent variable	β	se	t	p	LLCI	ULCI
Transformational Leadership	Organizational innovation	.0837	.0119	7.0599	.0000	.0605	.1069
Engage and Communicate		.6193	.0148	41.8972	.0000	.5903	.6483
Education and training		.0120	.0115	1.0504	.2936	-.0104	.0345

$R^2 = .6753$, $F=284.6986$ ($P=0.0000$), Direct Effect of Independent Variables

Indirect effect verification

<#6> Indirect effects of innovation behavior between 'transformational leadership' and organizational innovation

Effect	Effect	Boot SE	BootLLCI	BootULCI
Total effect	.0861	.0119	.0628	.1093
Direct effect	.0837	.0119	.0605	.1069
Indirect effect	.0024	.0011	.0005	.0048

LLCI = Lower limit within 95% confidence interval of boot indirect effect
 ULCI = Upper limit within 95% confidence interval of boot indirect effect

<#7> Indirect effects of innovation behavior between 'participation and communication' and organizational innovation

Effect	Effect	Boot SE	BootLLCI	BootULCI
Total effect	.6229	.0148	.5938	.6518
Direct effect	.6193	.0148	.5903	.6483
Indirect effect	.0035	.0014	.0011	.0066

LLCI = Lower limit within 95% confidence interval of boot indirect effect
 ULCI = Upper limit within 95% confidence interval of boot indirect effect

<#8> Indirect effects of innovation behavior between education/training and organizational innovation

Effect	Effect	Boot SE	BootLLCI	BootULCI
Total effect	.0168	.0114	-.0057	.0392
Direct effect	.0120	.0115	.0104	.0345
Indirect effect	.0047	.0016	.0020	.0080

LLCI = Lower limit within 95% confidence interval of boot indirect effect
 ULCI = Upper limit within 95% confidence interval of boot indirect effect

Conclusion

- **Change management has a great impact on organizational innovation through changing innovation behaviors of employees.**
 - Transformational leadership has a significant impact on both direct, indirect and total effects on innovation behavior and organizational innovation
 - Communication and cooperation have significant effects on direct, indirect and total effects on innovation behavior and organizational innovation and relationships.
 - Education and training may affect innovation behavior but not organizational innovation
- **Need to manage the importance of transformational leadership and communication and cooperation in organizational change management**
 - Identify the importance of transformational leadership in planned change
 - In particular, the most important factor in changing management through consensus on innovation through communication is recently discussed.
 - Routine competency training alone is not enough to drive organizational innovation

Q & A