Exploring the Difference in Acceptance of Smart Work among Levels of Leadership Styles

Kiho Park*

Abstract

According to the development of smart technologies such as smart phones, tablet PC, and SNS communication, the necessity of smart work that can change the working environments in organizations has been emphasized. However, while there are many organizations that wish to adopt smart technologies, there are those that have been skeptical until now about its potential success.

Leaders may especially have different viewpoints concerning the efficacy and effectiveness of smart work depending on the industries, characteristics of the work, etc. Therefore, this research looks to investigate whether there may be differences between leaders (manager, project manager, supervisor, etc.) and non-leaders (team member, staff, etc.) group in accepting smart working through empirical and exploratory approaches.

Keywords: Smart Work, Telecommuting, Flexible Time, Leadership Styles, Teleworking, Smart Work Center. Telecommuter

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1. Introduction

Recently, lots of organizations compete fiercely to survive as the boundaries of business activities of companies expand to the global arena [Armenakis and Bedeian, 1992]. In this situation, firms look to improve and gain a competitive advantage by trying to find out more effective and efficient business activities through smart working that means working with smart.

Considering this environment of limitless competition, firms have to comprehend promptly and properly response to rapid wave of changes. For the sake of these circumstances, firms should drastically break away from the traditional working styles and re-engineer their way of conducting business activities by using smart technologies, the rapid development of which can make quality of life better. As female workers and senior citizens increase, working times and the retirement age must be flexible enough to adjust.

Through smart working, firms can save opportunity costs, improve productivity and satisfactory level of workers. Furthermore, these elements may be crucial factors to improve quality of products and services of organizations.

Therefore, executives or managers must recognize the importance of smart work as an innovative solution in changing traditional working customs. However, in considering the effectiveness and efficiency of smart work, leaders in charge of an organization may personally have different perspectives [Handy and Mokhtarian, 1995]. For example, leaders of Korean company that have old, bureaucratic, or authoritative lev-

els may especially have their own preferred working styles. Although they agree on the positive and economic effects of smart work, smart work may not be generally accepted in an organization positively. Basically, these are motivations of this research. Consequently, under the circumstances of requiring changes to office procedure, this research can provide important insights that, according to levels of different leadership styles, will determine whether there will be significant differences in accepting smart work or not. Both negative perspectives and vague overestimate concerning smart work can be problematic. This research assumed that there may be significant differences between the leaders and non-leaders group.

The results of this research can provide insights to leaders who want to adopt smart work into their own organization. On the basis of the levels of six leadership styles, if there are significant differences in accepting smart work, leaders have to recognize their own styles. Additionally, they should make a decision as to whether their organization will accept or swim against the wave of change.

2. Theoretical Background

2.1 Leadership Styles

Leadership can be defined as management competence driving thought and activities toward the right direction. Recently, lots of organizations have had a deep interest in studies concerning leadership and in academic areas, not only in management, but also psychology [Kim and Kim, 2013; Manz and Sims Jr., 1987,

Rauch and Behling, 1984]. According to the leadership styles, organizational cultures and characteristics, the organizational performance may be different [Daft, 2002; Park et al., 2012, Tichy, 2007].

The leadership styles proposed by HBR [2008] include democratic, affinitive, coercive, authoritative, coaching, and dominant. Leaders who usually have coercive leadership styles issue an order, indicate or direct their own members, and force obedience and urge to follow his order unilaterally.

Authoritative leaders pressure their followers and strongly require achieving the organizational goal. The authoritative and one-sided behaviors are the characteristics of leaders who tend to act unilaterally. The affinitive leaders think that relationship among people is more important than works, emphasizing affinity and solidarity among members.

Democratic leaders try to not lead dogmatically, but encourage their followers to participate in the decision-making processes. They assign duties to each person and lead the decision-making process. In the case of the dominant leader, they establish high-level performance criteria and motivate their employees to reach them. Finally, coaching style leaders let their persons develop and maximize personal abilities. Additionally, they give opportunities, guidance, and chances to achieve their own goals.

2.2 Smart Work

As for the place of working, teleworking includes telecommuting, video conferencing, and working at a smart work center, etc. In the 1970s and 1980s, economic recession and labor issues might have been the major reasons why these working styles developed. In the 1980s and 1990s, many organizations tried to change working styles experimentally and then, through these trials, many firms, public organizations and personals have improved the effectiveness and efficiency in organizational operations.

In Europe or America, teleworking i.e. smart work, is popular, and bigger companies have a higher ratio of teleworking [Ramsower, 1985]. The number of companies adopting smart work in Europe has increased consistently as the broadband network has expanded [Barkman Center for Internet and Society at Harvard University, 2010; Bush, 1990; Davis et al., 1989].

The circumstances surrounding firms consistently compel organizations to innovate the traditional working customs as digital technologies develop. Smart technologies especially increase opportunities for mobility and communicability in organizations and in one's personal life [Kim, 2005; Pendyala et al., 1991]. There may be a lot of beneficial aspects for firms and for their employees' personal lives such as reducing the size of the work space, improving productivity, upgrading worker's quality of life, decreasing of traffic jam and saving energy, etc [Adams et al., 1992].

The framework for smart work suggested by PwC consists of dimensions such as place, people, process and technology [PwC, 2012]. With smart work, organizations have to escape from a control and administration-centric organizational culture to a networked organizational culture. However, many leaders in organizations cannot discard their own working styles just yet [Pendyala et

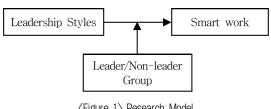
al., 1991; Stogdill, 1974; Sveiby, 1997].

Behind requiring innovative activities towards implementing smart work successfully, there may be side effects such as a negligence of duties, a low degree of productivity, and lack of a reasonable performance evaluation system, etc. that have to be solved. Therefore, the research concerning the side effects of smart work may be necessary.

3. Research Methodology

3.1 Research Model

The research model is depicted like <Figure 1>. The leader group (managers, PM, team leader, factory supervisor, etc.) and non-leader group (staffs or workers who don't have right of performance assessment) are suggested as control variables. Based on the classification of the HBR [2008], this research used the six leadership styles and measurements for evaluating levels of leadership styles that were then modified and supplemented subjectively. To measure the acceptance of smart work, questionnaires consist of four dimensions such as time. place, people, and technologies for smart work. Each item was measured using 5-point Likert scale as shown in <Table 1>. Items for levels of leadership were 18 items and for acceptance of smart work were 30 items.



⟨Figure 1⟩ Research Model

3.2 Research Hypotheses

Although there have been many researches about leadership for information-oriented society, researches concerning leadership in smart environment are lack still [Kim and Kim, 2013]. Furthermore, there were no studies about investigating the causal relationship between leadership styles and acceptance of smart work. So, this research proposed three hypotheses as below.

Hypothesis 1: According to the levels of each leadership style, there may be significant differences in the acceptance of smart work.

Hypothesis 2: There may be significant differences in the acceptance of smart work between leader and nonleader group in organizations.

Hypothesis 3: There may be significant differences in the acceptance of smart work among levels of leadership styles and between leader and non-leader group.

To verify the stated hypotheses, this research was conducted using the empirical study with questionnaire survey. Post-hoc verification was conducted using the SPSS 21.0 as a tool of analysis, one-way ANOVA, t-test for mean differences between groups, and Bonferroni.

Zero Hypothesis $H_0: \mu_i = \mu_j \ (i \neq j)$ Alternative Hypothesis H_a : $\mu_i \neq \mu_j \ (i \neq j)$

⟨Table 1⟩ Operational Definition of Variables

Variables	Items
Leadership Styles (18 items)	 L1. I hope that employees obey me when I give them orders. L2. I feel angry when subordinate personnel disobey my orders. L3. I hope that my staff complies with my directions under my suggestions. L4. I prefer a face-to-face report from staff over an email report. L5. I strongly ask to achieve the team or organizational goals that I established and delivered to subordinate personnel. L6. I normally try to carry out my original intention when I have task meetings or request inter-team collaboration. L7. I think that staffs are more important than work. L8. I always emphasize that team members or staff need to harmonize with each other. L9. I imagine that higher level of unity of staff will result in higher productivity. L10. I lead staff positively when participating in the decision making process. L11. I pursue a democratic way in team or organization operation. L12. I positively support that subordinate personnel can successfully conduct their own tasks. L13. I normally motivate staff to achieve a high level goal of organization or team. L14. I positively assist team members in successfully performing their duties or roles. L15. I don't care about any sort of methodologies when my staffs try to achieve their own high level goal. L16. I suggest the right directions to subordinate personnel to make the most of their ability. L17. I positively recommend training and learning to promote the ability of team members. L18. I believe that the staff themselves can find out answers or solutions.
Acceptance of Smart Work (30 items)	S1. Teleworking for smart work S2. Mobility of tasks S3. Work at a smart work center S4. Alternatively out or inside of office for work S5. Bringing your own device(BYOD) for work S6. Provide a device for work by the organization S7. Provided usage fee for work by the organization S8. Productivity of work in telecommuting S9. Collaborative problems in the case of teleworking S10. Improved quality of life in the case of active smart work S11. Efficiency of work in telecommuting S12. Neglect the task in the case of outside work S13. More active communication under a smart work environment S14. Effective way to work at a cafeteria or coffee house S15. Telecommuting but office work at least one day a week S16. Easy to effectively use individual time under teleworking S17. Worry about operational secret outflow in the case of using personal devices S18. National and social cost saving will be possible under smart work. S19. More effective way under outside work S20. Smart work may be the needs of the times. S21. Improvable way for higher productivity S22. Existing the detailed action plan for smart work S23. More investment for Smart work is required S24. Acceptance of styles of the working time suggested above S25. Acceptance of the working styles suggested above S26. Smart work is proper under characteristics of my tasks. S27. Already well prepared for smart work S28. Difficult to manage teleworkers S29. Difficult to evaluate the performance of teleworkers S20. Flexible time for smart work
Groups	Leader(managers, team leaders, factory managers, etc.) Non-leader group(personnel not having authority of performance rating)

4. Research Results

4.1 Data Collection

By visiting and providing an e-mail survey, a total of 118 responded questionnaires were

collected.

The respondents consist of staff members (20.3%), assistant managers (28%), managers (22.9%), deputy head of department (15.3%), department heads (9.3%), and executives (2.5%).

Respondents based on position consisted of team managers (22%), team members (68.6%), PM (4.2%), factory managers (2.5%), and board of directors (1.7%).

4.2 Reliability and Validity of Measurements

In order to verify the reliability and validity of the measurements, factor analysis was conducted by using respondent data. For extracting factors, the principal component analysis was performed. Varimax methodology was used for rotating factors. <Table 2> shows that 17 items were re-grouped into six factors. The first factor group consists of five items from 10th to 14th related to democratic leadership (DM). The rest of items were re-grouped as below <Table 2>.

The reliability test using Cronbach's alpha

showed that each of five variables were in acceptable level above .6 except for dominant leadership, but this variable was maintained for the purpose of this research.

Since each of items for measuring acceptance of smart work has different meanings, this research didn't perform factor analysis for dependent variables. Therefore each of the items was analyzed as dependent variables.

4.3 Categorization of Leadership Level

When categorizing the levels of each leader-ship style of respondents as high, mid, and low, this research adopted the techniques of frequency distribution table like below expressions. <Table 3> depicts the results of categorization.

(Table 2) Reliability and Validity

Leadership Styles

Item			Leadersl	nip Styles			Cronbach's Alpha
Item	DM	AF	CO	AU	CC	DO	Crombach's Alpha
L14	.776						
L12	.730						
L10	.643						0.777
L13	.612						
L11	.549						
L8		.846					
L9		.821					0.812
L7		.790					
L2			.855				0.732
L1			.804				0.732
L6				.767			
L5				.629			0.670
L3				.611			
L16					.599		
L17					.795		0.620
L18					.636		
L15						.825	

DM: democratic, AF: affinitive, CO: coercive, AU: authoritative, CC: coaching, DO: dominant.

Leadership	Min	Max	Mean	LOW	MID	HIGH	class size
DM	2.40	5.00	3.845	2.40~3.26	3.26~4.12	4.12~5	0.86
AF	1.00	5.00	4.097	1.00~2.32	2.32~3.65	3.65~5	1.32
CO	1.50	5.00	3.483	1.50~2.66	2.66~3.82	3.82~5	1.16
AU	1.67	5.00	3.581	1.67~2.73	2.73~3.87	3.87~5	1.10
CC	1.67	5.00	3.810	1.67~2.73	2.73~3.87	3.87~5	1.10
DO	1.00	5.00	2.881	1.00~2.32	2.32~3.65	3.65~5	1.32

⟨Table 3⟩ Results of Categorization

DM: democratic, AF: affinitive, CO: coercive, AU: authoritative, CC: coaching, DO: dominant.

4.4 Hypotheses Test Results

4.4.1 Difference in Acceptance of Smart Work among Leadership Styles

Through one-way ANOVA and test of mean difference, this research tried to find out difference in acceptance of smart work among levels (high, mid, low) of leadership styles each. Among the six types of leadership, only three leaderships such as AF (affinitive), CC (coaching), and DO (dominant) showed statistical significant difference in three items in acceptance of smart work as below <Table 4>.

First, the results showed that leaders who have lower level of AF ((mean (HIGH)-mean (MID) = $-.681^{***}$), and CC((mean(HIGH)-mean (MID) = $-.696^{***}$) type thought working at a café or a coffee house to be more effective.

Second, in the case of leaders with a lower level of affinitive leadership, they responded that smart work have to be adopted based on characteristics or types of work ((mean(HIGH)-mean(MID) = -.539*).

Third, the respondents who demonstrated a higher level of dominant leadership felt that there may be difficulties in evaluating the performance of teleworkers ((mean(HIGH)-mean (MID) = .592*).

As a result, organizations have to prepare systematic solutions for leaders who have different and negative perspectives in teleworking or performance evaluation methods.

Consequently, according to levels of leadership styles, there might be significant differences in acceptance of smart work. Therefore, Hypothesis 1was partly accepted.

4.4.2 Difference of Acceptance in Smart Work between Leader and Non-leader Group

Through t-test of independent samples, smart work items that showed significant differences in accepting smart work between leader (managers, team leaders, factory managers, etc.) and non-leader group (personnel not having authority over the performance rating) were such as BYOD (bring your own device) for tasks, effectiveness of teleworking, and flexible working time as shown in <Table 5>.

First, in comparison with the non-leader group, the leader group relatively preferred to bring their own devices for working (mean (non-leader)-mean(leader) = -.533, t = -2.265^{*}). Second, in comparison with the leader group, the non-leader group responded that teleworking (mean(non-leader)-mean(leader) = .469, t = 2.546^{*}) and flexible working time (mean(non-leader)-mean(leader)

= .501, t = 2.697**) will be more effective. So, Hypothesis 2 was partly accepted.

With results, this research can find out that there were differences in effectiveness of BYOD, flexible working time and teleworking between leader and non-leader group. Therefore organizations have to solve these gaps among these two groups.

4.4.3 Difference of Acceptance in Smart Work Controlled by Leader or Non-leader Group

This research performed the analysis whether differences in acceptance of smart work controlled by leader or non-leader group as control variables are or not. Actually, although non-leader respondents are not leaders in organizations, questionnaire made a request to respondents which leadership styles they recognize. <Table 6> shows the results of difference of acceptance in smart work controlled by leader or non-leader group.

First, in case of leader group who showed higher level of democratic leadership, for successful smart work, they emphasized that companies have to invest more resources and felt concern about difficulties in evaluation of performances. Conversely, in the case of non-leader group who responded with a higher level, their work has a higher mobility, and they thought that cafeteria or coffee shops were more effective ways to work.

Second, the leader group with a higher level of affinitive leadership suggested that, for collaborating or meeting with other members, telecommuters have to work in office at least one day a week. However, non-leader group with higher level of affinitive leadership responded

that cafeteria or coffee shops are more effective places to work.

Third, in the case of coercive leadership, there were no significant differences between leader and non-leader groups.

Fourth, in the case of the leader group, respondents who answered higher level of authoritative leadership felt concern about outflow of operational secrets if use own devices for works. They did not agree that smart work can save national and social cost. In case of non-leader group, there were no significant differences.

Fifth, the leader group with a higher level of coaching leadership answered that telecommuters have to work in the office at least one day a week for collaborating or meeting with other members. The non-leader group with a higher level of coaching leadership responded on the effectiveness of working at cafeteria or coffee houses or smart work center negatively.

Sixth, the leader group with dominant leader-ship did not show any significant differences. However, the non-leader group showing a higher level of dominant leadership answered that productivity and efficiency of tasks will be diminished. Additionally, they worried about outflow of company information and difficulties in performance evaluation of teleworkers if teleworkers use their own devices for works.

Consequently, according to levels of leadership styles controlled by leader and non-leader group, Hypothesis 3 that there will be significant differences in acceptance of smart work was partly accepted. Therefore organizations have to consider how they can minimize differences between levels of leadership styles and between leader and non-leader group.

(Table 4) Acceptance Cap among Leadership Styles

					ć	/020	
Shribes	Accentance of smart work	I andarchin laval	level air	Mean diff.	Std.	30% C.I	C.I.
Oty ICS	acceptance of strant work	TCGGC 3	μρ ιςνςι	(I-J)	err	Lower	Upper
		1101	MID	.100	619.	-1.40	1.60
		M D T	HIGH	.781	.597	79	2.23
		Œ	TOW	100	619.	-1.60	1.40
	Caté or cottee shops are more	MIM	HIGH	.681***	.205	.18	1.18
	CICCLIVE Ways to WOLN		МОП	781	762.	-2.23	29:
		HIGH	MID	681***	.205	-1.18	18
AF (affinitive leaderchin)			HIGH	-1.521	.635	-3.06	.02
(diffillative reductional)		1 0111	MID	050	899.	-1.67	1.57
		MOT	HIGH	.489	.643	-1.07	2.05
	Positive study of smart work on the	Œ	МОЛ	020.	899.	-1.57	1.67
	basis of task styles	MIM	HIGH	.539*	.222	00:	1.08
		1117111	МОЛ	489	.643	-2.05	1.07
		нісп	MID	539*	.222	-1.08	00:
		11001	MID	.161	.493	-1.04	1.36
		MOT .	HIGH	758.	.479	31	2.02
Ç		CITY.	МОЛ	161	.493	-1.36	1.04
CC (coaching leadership)	Cate or cottee shops are more	MIM	HIGH	***969.	.171	.28	1.11
(coaciniig icaaci sinp)	Circury way to work		TOW	857	.479	-2.02	.31
		HIGH	MID	696***	.171	-1.11	28
			HIGH	.932	.508	30	2.16
		WOI	MID	097	.202	59	.39
		row	HIGH	689**	.224	-1.23	14
DO	Difficult to evaluate performance of	CIIV	TOW	760.	.202	39	.59
(dominant leadership)	teleworkers	OTIM!	HIGH	592*	.223	-1.14	05
		пли	TOW	.689**	.224	.14	1.23
		ПОП	MID	.592*	.223	90.	1.14
***	u c						

 $^*p < .001, ^*p < .01, ^*p < .05.$

		t-t	est for me	ean differe	nce	
Acceptance of smart work	+	d.f.	Mean	Std.	95%	C.I.
	ι	u.1.	diff.	err.	Lower	Upper
BYOD(Own device)	-2.265*	107	533	.235	-1.000	066
Teleworking is more effective than office working	2.546*	107	.469	.184	.104	.834
Flexible working time	2.697**	107	.501	.186	.133	.869

⟨Table 5⟩ t-test Results Between the Non-Leader and Leader Group

(Table 6) Difference of Acceptance in Smart Work Controlled by Leader or Non-leader Group

		S2	S3	S8	S11	S14	S15	S17	S18	S23	S29
DM	Leader									✓	✓
DM	Non-leader	✓				✓					
AF	Leader						✓				
АГ	Non-leader	✓									
СО	Leader										
	Non-leader										
AU	Leader							✓	✓		
AU	Non-leader										
CC	Leader						✓				
	Non-leader	✓	✓								
LD	Leader										
	Non-leader			✓	✓			✓			✓

Research Limitation and Conclusions

According to the empirical research, this study can investigate the differences in acceptance of smart work among levels (high/mid/low) of leadership styles, leader and non-leader groups.

First, among the three levels of leadership styles categorized according to levels, there were statistical significant differences in acceptance of smart work. Second, this research can also find out the differences between leader and non-leader groups in acceptance attitudes of smart work. Third, according to levels of leadership styles controlled by leader and non-leader groups

as variables, there were partly differences in accepting attitudes of smart work. Consequently, three hypotheses are partly accepted. Therefore organizations have to consider how they can minimize differences between levels of leadership styles and between leader and non-leader group.

This research may have some limitations such that have to complement for further researches. First, according to the industrial field, there may be differences in attitude of embracing smart work. As this research, however, is exploratory phase, the comparative researches among industries can give us more implications in fur-

^{**}p < .01, *p < .05.

ther studies.

Second, as for not systematic and reasonable sampling but random sampling methodologies, research results may not have higher reliable conclusions. Therefore, there should be guaranteed the balanced sample sizes between leader and non-leader groups by systematic sampling.

Third, the design of measures for evaluating levels of leadership and acceptance level of smart work should be improved by more sophisticated and clear methodologies. On the basis of above limitations, the further research will be conducted.

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(Table 4) Acceptance Gap among Leadership Styles

ť				Mean diff.	Std.	95% C.I.	C.I.
Styles	Acceptance of smart work	Leadership level	ııp level	(I-I)	err	Lower	Upper
		1 0117	MID	.100	619.	-1.40	1.60
		» CI	HIGH	.781	.597	79	2.23
		į	TOW	100	619.	-1.60	1.40
	Café or coffee shops are more		HIGH	.681***	.205	81.	1.18
	CHECUVE WAYS IO WOLD		TOW	781	.597	-2.23	29.
į		HIGH	MID	681***	.205	-1.18	18
AF (affinitive leadershin)			HIGH	-1.521	.635	-3.06	.02
(annuave reactionly)		1 0117	MID	050	899.	-1.67	1.57
		» CI	HIGH	.489	.643	-1.07	2.05
	Positive study of smart work on the	Ę	TOW	.050	899.	-1.57	1.67
	basis of task styles	TIMI TIMI	HIGH	.539*	.222	00.	1.08
		11711	TOW	489	.643	-2.05	1.07
		HOILI HOILI	MID	539*	.222	-1.08	00:
		1 0117	MID	.161	.493	-1.04	1.36
		N CT	HIGH	758.	.479	31	2.02
Ç		THE STATE OF THE S	TOW	161	.493	-1.36	1.04
Ccoachinα leadershin)	Cate or cottee shops are more effective way to work	MIN	HIGH	***969.	.171	.28	1.11
Coacimig icaacismp)	CITCOLOC Way to WOLK		TOW	857	.479	-2.02	.31
		HIGH	MID	***969	.171	-1.11	28
			HIGH	.932	.508	30	2.16
		1001	MID	760	.202	59	.39
		N CT	HIGH	689**	.224	-1.23	14
DO	Difficult to evaluate performance of	E P	TOW	760.	.202	39	.59
(dominant leadership)	teleworkers	OTTWI	HIGH	592*	.223	-1.14	05
		пОп	LOW	689	.224	.14	1.23
		прп	MID	.592*	.223	.05	1.14
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 *** p < .001, ** p < .01, * p < .05.